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FEBRUARY - MARCH 1950

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CLINICAL ASPECTS OF CEREBRAL PALSY

by

GEORGE G. DEAVER, M. D.

Lenox Hill Hospital Cerebral Palsy Pre-School Center

DEFINITION:

Cerebral palsy has been defined as a neuro-muscular disability caused by injury to the motor centers of the brain.

HISTORY:

The story of those having cerebral palsy is one of children being hidden away in the home as a "curse on the family" or sent to mental institutions. Medieval mosaics, monuments and paintings give evidence that cerebral palsy was known many long years ago .

It was not until 1862 that William John Little, an English surgeon, wrote a monograph describing the condition which we now call cerebral palsy. The spastic grimacing, drooling child with a "scissors gait" that Dr. Little described gave the erroneous impression that all children with cerebral palsy were of that type and feebleminded. The term Little's Disease should not be used to describe all children with cerebral palsy since we know that impaired intelligence does not necessarily accompany the motor disability and that spasticity is only present in one type of cerebral palsy. It was Dr. Bronson Crothers of Boston who gave us the first true neurological basis of cerebral palsy. Dr. Earl R. Carlson, who is affected with cerebral palsy, has added to our knowledge of cerebral palsy and is the author of "Born That Way", a remarkable autobiography. The physician who has contributed most to our knowledge of the diagnosis and treatment of cerebral palsy is Dr. Winthrop Phelps of Baltimore, Maryland.

INCIDENCE:

It is difficult to give the number of children having cerebral palsy. Surveys have always revealed that the number in any given area is always greater than the number reported; that the incidence is not affected by economic, social or geographical factors, and since the condition does not occur in epidemics, the number of cases occurring is approximately the same from year to year.

On the basis of repeated samplings, Dr. Phelps estimates that at a birth rate of twenty-three per thousand live births, seven cases of cerebral palsy are born each year in each 100,000 of the total population. One of these children dies before they reach the age of six., Using this formula, it is estimated there are 104,895 cerebral palsied persons in New York State up to thirty-five years of age.

◗ *See statistics on Page number* 4

ETIOLOGY:

Cerebral palsy may be congenital or acquired. The principal causes responsible for congenital cases are as follows:

1. Anoxia. The most common cause of damage to the brain at birth is lack of oxygen. This failure of respiration may be due to taking some drug which will affect the child's breathing center in the brain, blockage of the throat by mucus, collapse of the lung or compression of the cord.

2. Hemorrage of the brain. The hemorrage may be caused by the blood vessels becoming fragile as the result of anoxia, compression of the bones of the head because the head is too large or by forceps.

3. Incomplete or mal-development of the motor area of the brain. These may be due to defects in the sperm or ovum, something wrong with the chromosomes or something inherited which is passed down.

4. The Rh factor. An Rh negative mother giving birth to an Rh positive child, develops in her blood antibodies to that child's blood. These antibodies tend to destroy the child's blood and he is born with a severe hemorrage and jaundice and as a result, certain portions of the brain are destroyed. If this child survives he usually has a rigidity type of cerebral palsy.

The acquired, or post-natal causes of cerebral palsy are due to skull fractures producing hemorrhage; infections, such as encephalitis, which may follow meningitis; severe toxic illness and embolii of of the brain.

TYPES OF CEREBRAL PALSY:

Since the brain is the seat, not only of muscular control but also of the emotions, the sensations, intelligence, behavior control, personality and many other such factors, it is obvious that injury to this organ may result in many symptoms, depending on the location and degree of involvment.

It is thus possible for brain injury to result in paralysis, convulsions,

mental defects, personality and behavior abnormalities, or sensory defects of hearing, vision or touch. The cerebral palsied patient by definition must have a motor defect such as paralysis, weakness or incoordination. Often the other factors are missed.

There are five clinical types of cerebral palsy with twelve different types of athetoids which have been classified by Dr. Phelps:

SPASTICITY:

The spastic type is the result of injury to the pre-motor area of the cortex. The characteristics of this type are manifested by hyperirritability of the muscles to stimuli and it is a constant condition. There is a stretch reflex and the muscles react by contracting. The reflexes are hyperactive in the affected parts and when the lower extremities are involved the Babinski is positive. To test for spasticity the muscle group is placed in the contracted position and then suddenly moved quickly in the opposite direction. If spasticity is present there will be a blocking or slowing up of the movement. Every muscle group must be tested in this manner to detect spasticity.

Chewing, swollowing and speech are likely to be involved and there may be normal and flaccid muscles as well as spastic in those with cortical brain damage.

There are from 35 to 40 per cent of cerebral palsied patients of the spastic type and one or more parts of the body may be involved. Thus congenital cerebral palsy of the spastic type may be a mono-, para-, hemi-, tri-, or quadriplegia.

ATHETOSIS:

The athetoid type is said to be the result of damage to the basal ganglia of the mid-brain. The chief *characteristics* of this type is "involuntary motion of an unpatterned character" (Phelps.)

The athetoid who does not try and prevent these involuntary motions and does not have resisting muscles to stop the movements, is classified as a NONTENSION ATHETOID.

The athetoid who voluntarily tenses his muscles in an endeavor to stop the involuntary movements is classified as a TENSION ATHETOID. Many of these patients are so strong and stiff that it is almost impossible to flex their joints. In many cases these patients are classified as spastic. The following tests are useful in making a differential diagnosis:

Up to 21 years of age	*Up to 35 years of age*	
6	6	per 100,000 total population each year.
x 21	x 21	number of different age groups.
126		per 100,000 total population up to 21 years.
	210	per 100,000 total population up to 35 years.
x 135	x 135	The 1940 Census of N.Y. State showed a population of 13,479,142.
17,010		total cerebral palsied children up to 21 years.
	28,350	total cerebral palsied individuals up to 35 years.
	z 3.7	The last census showed that there was an average of 3.7 persons per family in N. Y. State.
	104,895	aggregate of individuals up to 35 years, and members of their family in N. Y. State affected directly or indirectly by cerebral palsy.

1. If the patient is not too tense, by moving the part rapidly backward and forward or shaking the part, the tension will be eliminated. This cannot be done in a spastic.
2. The tension in a spastic will increase with stimulation, such as a loud noise, but it does not increase the tension in an athetoid.
3. The reflexes are hyperactive in the spastic but are normal in athetoid.
4. Overflow is seen in the spastic and athetoid. Normal overflow occurs in individuals while attempting to perform activities of effort, such as, closing the eyes, tensing the muscles of the face or grunting, which does not actually help in accomplishing the activity. This same type of overflow is seen when the spastic attempts to perform a useful purposeful movement but is practically continuous with the athetoid.

The other forms of athetosis which have been classified by Dr. Phelps are the neck and arm, rotary, tremor, flaccid, shudder, dystonic emotional release, hemiathetosis and deaf athetoid. Approximately from 30 to 35 per cent of patients with cerebral palsy may be classified as athetoid.

ATAXIA:

The ataxia type is the result of cerebellar damage. The chief diagnostic signs are disturbances of the balance mechanism and posture sense which causes loss of equilibrium in walking and standing. The muscles are lacking in tone and all reflexes are diminished. Nystagmus may or may not be present. From 10 to 15 per cent of individuals with cerebral palsy are of the ataxia type.

TREMOR:

The tremor type is most commonly found in acquired cerebral palsy and is caused by brain lesions in the basal ganglia. The chief signs are involuntary contractions which are regular in rhythm and reciprocal in nature. When the tremor occurs only on attempted movement, it is classified as an *intention tremor.* The non-intention tremors are present at all times.

RIGIDITY:

The rigidity type of cerebral palsy is thought to be due to cerebral anoxia and erythroblastosis fetalis. It is also often seen following encephalitis. The lesion in the brain is thought to be diffuse rather than

localized. As a result most of the subjects are mentally retarded. Rigidity is diagnosed by a lack of elasticity in the muscles and on passive movement there is a stiffness and cog-wheel type of response.

EVALUATING THE NEEDS OF THE CEREBRAL PALSIED PATIENT

Before any program of treatment can be formulated it is necessary to evaluate the damage produced by the brain damage.

MEDICAL EVALUATION

It is important to obtain a careful and detailed history from the parents before examining the patient. The findings of the physician trained in the recognition of the clinical types are summarized as follows:

Etiology
Congenital or acquired and the possible reason for the existing condition, such as, birth injury, cerebral anoxia, malformation or Rh factor.

Diagnosis
If there is a neuromuscular condition, the diagnosis should be cerebral palsy.

Clinical Type
Spastic, athetoid, ataxia, rigidity or tremor type.

Disability
Mono-, para-, hemi, tri-, or quadriplegia.

Extent of Disability
Mild or severe.

Cerebral palsy always produces a neuromuscular disability but there may be visual and auditory defects, speech is usually involved in 75 per cent of the cases and mentality in from 33 to 50 per cent, contractures often occur as a result of spasm and growth and nutritional problems may be present because of the difficulty in feeding. These and other conditions, such as convulsions, must be evaluated before a program of treatment is formulated.

THE FUNCTIONAL EVALUATION

All treatment should be directed to teaching the child to perform the activities essential to daily living and working. It is not enough that treatment should improve the neuromuscular system in a general way. To justify itself, treatment has to have specific and practical value and be worthwhile from the standpoint of time and money spent and the life of the patient.What are the activities necessary for daily living and working? These are (1) the ability to walk and to travel, (2) to be able to care for daily needs, such as, dressing, eating and bathroom necessities, (3) to have the maximum use of the hands, (4) to be able to speak adequately and (5) to appear not to be abnormal.

Before prescribing a program it is necessary to evaluate the patient's present ability in these activities:

1. Walking and Traveling. To walk and travel involves the proper functioning of the trunk and lower extremities. This functional test is conducted by the physical therapist and the results indicate the degree to which the child has progressed toward the first objective of treatment – the ability to walk and travel.

2. Self-Care and the Use of the Hands. This functional test is given by the occupational therapist and the results indicate the child's ability to perform the essential activities of self-care.

3. Speech. It has been estimated that over 75 per cent of the children with cerebral palsy have speech defects. The functional test indicates the present status of the child in producing speech. The speech defect may be related to breathing phonating or articulation or associated with lack of cerebral dominance. A therapist trained in speech defects of the cerebral palsied child will be able to determine the cause and outline the treatment.

4. Mentality. Those with cerebral palsy are often considered mentally retarded because of their appearance, sensory defects and inability to make normal responses. It has been found by sample studies that about 75 per cent of all these children have an I. Q. of 70 per cent or above. It will be found, however, of those who come to the clinic for treatment there will be more than 50 per cent who have an I. Q. of less than 70 per cent.

Testing cerebral palsied children is difficult because of the neuromuscular and speech difficulties. There may be unrecognized visual and hearing difficulties which further complicate the problem of testing. There are no standard tests suitable to differentiate between the child's knowledge and his ability to convey this information to another. A measurement of the child's progress in learning is a better index of intelligence than any formal test. To attempt to evaluate the intelligence of a child with cerebral palsy requires the services of a psychologist who understands the handicaps of the child. In order to evaluate the patient's educability, it is essential that the psychologist record the findings in a manner which will be useful to all those who are concerned with the care and treatment.

TREATMENT OF THE CEREBRAL PALSIED

Having completed the medical and physical evaluation a program of treatment can now be prescribed to meet the needs of the patient.

A. *Drugs.* The use of drugs have been tried to relieve spasticity, rigidity or tremor but treatment of cerebral palsy by drugs is still in the experimental stage. Prostigmine (Neostigmine), curare (Intercostin), myanesin (Tolserol), dilantin sodium and hyoscine and its related drugs have been effective in some cases.

B. *Surgery.* Surgical procedures are often indicated on the extremities of the spastic but, as a rule, they are contraindicated in the athetoid group. Spasticity is in isolated muscles but athetosis is in many muscles and when the movement is blocked will shift to other groups of muscles. The principal operative procedures are limited to tendons (tendon lengthening, tenotomy and transplants,) nerves (neurectomy) and joints (arthrodesis.) There have been surgical operations on the brain and spinal cords to diminish involuntary motion.

C. *Braces.* The purpose of braces is to prevent deformities, support the body weight and to control movements. Short leg braces are used at night to prevent heel cord shortening. If the child walks on the toes, a short leg brace with a 90 degree stop at the ankle should be prescribed for use during the day. Long leg braces are needed to correct knee flexion contractures and support the body in standing. Long leg braces with a pelvic band are needed to correct hip adduction and rotation and support the trunk on the lower extremities. The Knight and Taylor braces are used to support the trunk. Braces are seldom needed for the upper extremities. In some children they are used to support the head or to keep the arms in extension.

D. *Physical Modalities.* To perform the physical activities of daily living requires the training of the neuromuscular system in basic movements before the coordinated and combined functional movements are learned. The physical modalities used are as follows:

1. *Massage* is used for building up the tone and circulation of muscles.

2. *Passive Motion* is performed entirely by the technician and is used in all types of cerebral palsy.

3. *Active Assistive Motion* is performed by the patient with assistance being given by the technician to prevent overflow and incoordination.

4. *Active Motion* is performed entirely by the patient. It is one of the last phases of fundamental training and the beginning of the training for skillful and functional movements.

5. *Resistive Motion* is a force applied against a desired motion by gravity, objects or by the therapist. It is used in developing increased strength in muscles.

6. *Conditioned Motion* is useful in training the child to perform reciprocal movements in response to singing rhymes. There is a standard rhyme for every motion of the body.

7. *Automatic or Confused Motion* are resisted motions which reinforce the nerve impulse to a flaccid cerebral muscle in another part of the body. This can be demonstrated in patients with flaccid dorsiflexors. When resistance is given to hip flexion the foot will dorsiflex.

8. *Combined Motions* are synchronous motions of several joints to perform a functional movement, such as, flexion of the forearm with supination of the hand.

9. *Rest* is freedom from activities. Cerebral palsy children require more rest than normal children because of the greater use of their muscles. Braces, special chairs and tables are used to obtain the maximum amount of body rest.

10. *Relaxation* is the ability to voluntarily relax muscles and is a specialized technique which must be taught.

11. *Motion from Relaxed Position* is used chiefly for teaching the athetoid to maintain complete relaxation while different parts of the body are passively moved.

12. *Balance* is needed for crawling, sitting, kneeling, standing, walking and climbing.

13. *Reciprocation* is the simultaneous reverse action of opposite parts, such as the legs in walking.

14. *Reach and Grasp* motions of the arms and hands are needed for grasping, holding and releasing objects. It is essential to use the reach and grasp motions in deciding handedness.

The techniques of using the modalities and the types of cases in which they have been found most useful are described in books written on the treatment of cerebral palsy. 1

E. *Functional Training.* As the child learns to control his head and trunk, and actively move the arms and legs in a coordinated manner, he should be taught to use these movements in performing the activities necessary for daily living. When a child can grasp and release objects and bend his forearm, he can be taught to cleanse his teeth, wash his face and eat and drink. When he has learned to balance and walk in the parallel bars, on skiis and crutches perhaps he can be taught to walk alone without appliances or arm supports.

The purpose of drugs, surgery, braces and special appliances and the physical modalities is to prepare him to walk and travel, care for his daily needs and have the maximum use of the hands.

F. *Speech.* It has been estimated that 75 per cent of cerebral palsied children have speech difficulties

1. Egal, Paula F. Technique of Treatment for the Cerebral Palsy Child, C. V. Mosby, St. Louis, 1948.

and 60 per cent would benefit from speech training. The speech evaluation will indicate the type of speech defects for which the speech pathologist should prescribe the therapy. Speech training should begin in the pre-school period in order that the child may benefit from his education when he starts school.

G. *General Health.* The general health of the cerebral palsied child is similar to that of other children with some exceptions.

The nutritional status must be watched because of the difficulties in chewing and swallowing. Due to the extra amount of movements these children require a diet high in calories to meet their needs. When eye and ear defects are present, it is necessary to have treatment by specialists who understand the unusual types of defects in these children. Convulsions occur in a certain percentage of these children and they must be controlled by drugs.

MEETING THE NEEDS OF THE CEREBRAL PALSIED

Meeting the needs of those affected with cerebral palsy is a long and difficult process because of the many types of handicaps which may be present in the same individual. If we save the lives of these children it is our responsibility to see that something is done for them in order that they do not become unproductive burdens to society.

A. *Procedures for Resgistration.* It should be required by law that all cerebral palsied persons be registered with the State Department of Health. The registration of these individuals could determine for each community the facilities needed for treatment and education.

B. *Treatment Centers.* There are four procedures which may be utilized in organizing treatment centers.

CORRECTIVE THERAPY SUPERVISOR GETS BROOKLYN SANITARIUM POST

The Brooklyn Sanitarium and Hospital for Chronic Diseases, Brooklyn, N. Y. has named Murray Chrystal, Administrative Director of Physical Medicine and Rehabilitation.

Mr. Chrystal, formerly the circulation manager of the Journal for Physical and Mental Rehabilitation, and Supervisor of Corrective Therapy at the Bronx Veterans Hospital, has been associated with the physical Medicine and Rehabilitation programs of the Veterans Administration Hospitals and Army Base Hospitals for the past 12 years.

1. *Institutions.* The individuals can be placed in institutions where they may live and receive the necessary care and treatment. This method is desirable when the parents do not have the time, patience or facilities to cope with the needs of their child. This care will cost between $3,000 and $4,000 a year for each child but it would be impossible for any state to finance such institutions to meet the needs of all the cerebral palsied who would apply.

Those children who are not educable because of their mental retardation and/or severity of disabilities should be placed in institutions for custodial care.

2. *Diagnostic Centers.* The diagnostic centers can be established in hospitals where children could stay for a period of time until the diagnostic study and evaluation has been completed and a plan of treatment formulated. This type of service would afford an opportunity for all the specialists to study the patient and recommend the type of treatment to be carried out in the hospital, in the local community where the child lives and by the parents at home.

3. *Out-Patient Clinics in Urban Centers.* The establishment of clinics in hospitals where parents can bring their children for diagnosis, evaluation and treatment is the best procedure in starting a program in a city. Such clinics would be staffed by a team of medical and therapeutic personnel trained in the treatment of cerebral palsy. The members of the staff would instruct the parents in the home treatment and care of their child.

4. *Out-Patient Clinics in Rural Areas.* The Clinics in rural areas should be visited by competent physicians and therapists from the urban centers. This could be done by having automobiles and large trailers or by visiting local rural hospitals where facilities could be obtained. The staff could remain in the local area for several days and return at stated intervals. The objectives of such a unit would be to diagnose and prescribe the necessary treatment for the physicians in that area and to teach the parents a home program.

C. *Medical Personnel.* To diagnose and classify the various types of cerebral palsy, evaluate the neuromuscular, speech and mental disabilities and prescribe the proper treatment to meet the needs of cerebral palsied patients requires the services of trained personnel. There is a great shortage of trained medical personnel and therapists. In an endeavor to provide the necessary trained personnel, the American Academy for Cerebral Palsy was formed in 1946. The 32 physicians who have qualified for membership are conducting training courses for physicians and therapists in their centers. The National Society for Crippled Children and Adults and its State Societies are giving scholarships for

training of physicians and therapists.

D. *Education.* Facilities should be available for the education of children with cerebral palsy who are educable. The pre-school child would benefit from the social, recreational and theraputic standpoint by attending a kindergarten or nursery school. The mother would benefit from having a daily period of freedom and opportunity for social and recreational activities away from her child. When these children reach school age, those who are ambulatory, can care for their daily needs and have good use of one arm and adequate speech should attend a regular school. Special classes, or schools, should be provided for those children who are not ambulatory and cannot entirely care for their daily needs but have good speech and good use of one or both hands. It is essential that these children be given the necessary training in ambulation and self-care while in school. No person should be allowed to matriculate for college who is not able to perform the activities essential for daily living and able to speak and write adequately. The purpose of higher education is to prepare individuals primarily for a vocation and economic independence.

E. *Vocational Training.* The purpose of any program for the handicapped person is to attain the maximum physical, mental and social restoration in order that he may be trained and placed in a vocation best suited to his abilities and disabilities. There is no economic value in knowledge. It is only when a person can use knowledge, by speech or the use of the hands, that it is saleable.

The cerebral palsied person can be trained and placed in a vocation if he is given early vocational guidance and a realistic picture of his own disability and chances for normal living.

THE THERAPEUTIC VALUE OF RECIPROCAL MOTION SKIIS

By

JOAN C. KUHNEN
Coordinator

LENOX HILL HOSPITAL, CEREBRAL PALSY CENTER
New York City, New York

In rehabilitation work and in the related field of cerebral palsy training, doctors and technicians have long needed equipment which would teach patients to walk in a natural manner. The newly designed walking trainer called Reciprocal Motion Skiis* seems to answer this need by teaching the patient to walk with reciprocal motion, by providing necessary stability, by preventing internal and external rotation of the hips, by teaching the patient to balance while in motion, and by using color as a visual aid.

Although Reciprocal Motion Skiis were designed especially for cerebral palsied children they may have value in any field where walking must be taught. They are now being used experimentally in the treatment of hemiplegias, multiple sclerosis and conversion hysteria.

Reciprocal Motion Skiis Emphasize and require walping with a reciprocal pattern. The importance of this pattern to proper and stable walking cannot be overemphasized. Everyone who walks normally walks with a reciprocal pattern. That is, opposite arm and leg move forward at the same time. When the left leg strides forward the right arm also swings forward; and when the right leg moves forward so does the left arm. This very simply is reciprocal motion.

It takes the proper balance to walk correctly. In walking with reciprocal motion, an upper quadrant on one side of the body is balanced with the lower quadrant on the opposite side. The proper distribution of body weight occurs, and in this way the individual maintains balance while in motion. If you attempt to walk without using reciprocal motion you will feel uncomfortable, unnatural and out of balance. So too, if a patient is to walk comfortably and naturally, he must learn to walk with reciprocal motion. Reciprocal Motion Skiis will require him to do so.

Each pair of skiis consists of two separate bases to each of which one of the feet is strapped. A pole is attached to each ski base and extends upward so that it can be grasped by one of the hands. On Reciprocal Motion Skiis the pole which it attached to the left ski base jogs over so that it is grasped in the right hand and similarly the pole attached to the right ski base jogs over and is grasped in the left hand. Thus when the left ski is pushed forward with the left leg the right arm will also move forward together. This is the natural reciprocal pattern of walking.

Because Reciprocal Motion Skiis teach walking with a reciprocal pattern they are a valuable part of every cerebral palsy training program. At the outset of the program the child is given mat and table exercises to strengthen his muscles. He also begins to learn the elementary functional activities of sitting and crawling. As he progresses more advanced skills are taught such as kneeling and standing balance, walking in parallel bars, and using skiis. In all of the activities involving locomotion emphasis is placed on reciprocal motion of the arms and legs. When Reciprocal Motion Skiis are used this emphasis is continued and applied to the ski-stage of training, which is the bridge between walking in parallel bars and walking independently. Thus the Skiis

are used as a direct preparation for proper independent walking. Their effectiveness can be gauged by their increasing use in cerebral palsy treatment centers throughout the country.

Other features of the Reciprocal Motion Skiis are designed to correct the disabilities of patients who are learning to walk. The Skiis are built on a broad base to provide stability, which is especially needed to insure the confidence of a patient who has poor balance. Interlocking of the ski

bases keeps the legs from spreading apart and eliminates internal and external rotation of the hips; it also prevents a scissor gait. Furthermore, because of their all-metal construction, the Skis are properly weighted to provide the resistance needed for strengthening weak leg muscles.

Color is used to advantage. One ski base and pole is colored red, and the other yellow, so that the patient associates the movement of the right arm and left leg with red and the movement of the left arm and right leg with yellow. This facilitates the acquisition by the patient of the correct reciprocal walking pattern by visual as well as kinesthetic learning.

New York Study

At the annual conference of the New York State Association for Crippled Children, Moir P. Tanner, director of the Buffalo Children's Hospital, asked for a state study of convalescent and rehabilitation institutions for children. Mr. Tanner suggested that the survey be followed by the formulation and enforcement of standards for plants, equipment, staff and relationship with a recognized hospital.

He said, "Whereas hospitals must maintain specific standards for the care of patients, rehabilitation and convalescent centers for crippled children are under less obligation in this state. Many of them have a shortage of nurses, inadequate staff organization and maintain no formal relationship with any general hospital."

Mr. Tanner is a regional secretary of the State Joint Hospital Survey and Planning Commission, president of the Middle Atlantic Hospital Assembly and past president of the New York State Hospital Association.

New Horizons in Hospital Planning

New York City has four new hospitals and ancillary facilities currently under construction, at a cost of $42,000,000, and has plans developed for $150,000,000 worth of additional hospitals, replacements and renovations of existing facilities.

In this program, New York is gearing its hospitals to changing health and social patterns, said Commissioner of Hospitals Marcus D. Kogel, M.D. New York general hospitals will include large services for ambulatory patients, and communicable disease, tuberculosis, psychiatric and rehabilitation units.

The greatest problem facing hospital planners today—that is, provision for the chronically ill, aged and infirm—will be met by constructing chronic disease wings of general hospitals and special hospitals for the chronically ill, provided with facilities for research, and designed to meet all demands for prevention, hospital care and rehabilitation.

Famous Sports Doctor Profiled in Esquire

Doctor, athlete, raconteur – Peter V. Karpovich has made more discoveries about trackmen, swimmers and middle-aged golfers than any man in the world.

There isn't a sport that Dr. Karpovich, Director of Health Education at Springfield College, doesn't know from its medical side, declares the March Esquire article, THE MEDICAL SAGE OF SPORTS, by Dr. Albert Parry.

Dr. Karpovich, the foremost doctor of sports and physcial education in the United States, has done more research in swimming than anyone else in the country. He has analyzed every stroke and style of swimming known to man and animal.

He is the man who proved that a right-handed sprinter should start out on his left foot–it is the stronger of the two and makes a longer stride. He is the expert who, in less than an hour, can demonstrate some 40 methods of reviving the drowned. And he won laurels when he proved that even cardiac patients can play 18 holes of golf with safety–and profit under certain conditions of proper supervision.

Fond of pranks, one day last spring the doctor walked into a class at Colgate University and introduced himself as a circus-flea trainer, a freshly arrived Russian emigre with hardly any knowledge of English who nevertheless wished to tell these bright American lads what a great future lay in training fleas for the circus.

The March Esquire profile of the colorful, humorous, salty, capable, yet modest Dr. Peter V. Karpovich is a tribute to the "Medical Sage of Sports" who happily plunges from one endless experiment to another to uncover more information about the medical side of physical education and sports.

PHYSICAL MEDICINE REHABILITATION OF THE BLIND

R. C. WILLIAMS, KATHERN GRUBER, C. W. BLEDSOE

Blind and Seeing Orientators

In the Central Unit of Blind Rehabilitation, Physical Medicine Rehabilitation Service, U. S. Veterans Hospital, Heines, Illinois, the patient is submitted over the course of 18 weeks to an environment which is a controlled one both physically and from the standpoint of mental hygiene. While a part of this environment, the patient receives a prescribed course of activities designed to recondition his muscular reflexes in a manner that makes him generally effective in performance of common skills without sight. This is accomplished through individual direction by therapists called orentators who constantly observe and take into account the patient's traits and his mental and physical reaction to treatment.

These orientators are under the direction of a chief who is personally responsible for control of the environment and all practices that go on within it.* Himself blind, he is capable in each of the skills taught to patients. The success of treatment depends heavily on the chief's example to the other patients and his qualities of leadership in directing the activities of the seeing orientators under him. These must function as a team, and in order to be successful each must meet exacting standards of thought, word and action.

The following is a description of an incident in which the chief (blind) and the orientator (seeing) assisted a patient in overcoming a difficulty.

PATIENT HELPED TO OVERCOME FEAR OF RAILROAD CROSSING

Source:

Notes of Chief of Blind Association, Hines, Illinois.

Situation:

Railroad crossing at Fifth Avenue elevated, Maywood, Illinois, near Hines Hospital. The so-called "elevated railroad" crosses Fifth Avenue and its sidewalks at ground level: for which reason draw barrier-gates are provided of the type which are raised and lowered at the approach of the train to the accompaniment of a loud bell. The railroad is electric and operates on a "third" rail, in which there is a gap.

The patient's fear, or dread, of the elevated track began when in the course of a regular lesson a bell rang at the next crossing announcing the approach of the train. The patient went to pieces, started to move, but did not appear to know which direction he should take, then lost track of everything. The orientator reached out, made contact with the patient in the customary fashion for guiding (guidee's hand on guider's elbow) moved across the track at a stroll, and called to the patient's attention the amount of time that elapsed before the train actually arrived. But this, it seems, only caused the patient greater fear.

The following Monday afternoon, another orientator reported to the Chief that the patient had refused to attempt to cross this crossing. The orientator and the chief diagnosed the refusal as "not the kind often associated with blinded veterans, the simple, stubborn, unreasonable sort of refusal." The chief adds that the patient stood and stood and when the time for the period had elapsed, he simply said to the orientator that he just "couldn't do it."

The orientator reported this occurrence to the chief of the program and they discussed what the reasons might be. They decided that the crossing with the third rail present, and reputedly uncovered, a blind person had reason to doubt the wisdom of crossing, and that it was a case of lack of information about that particular set-up. They decided further that the patient had a "little extra pride", would not make necessary inquiries of the orientator, whose duty it was not to volunteer such information at that particular stage of progress. The chief observes that it was an excellent opportunity to acquaint the patient with "the necessity of asking the correct questions after he had made an appraisal to the best of his ability." He decided to accompany the patient and orientator the next day to iron out the difficulty, taking all the time necessary.

The chief reports the measures taken as follows:

"We stood for quite a long time just along side of the L track with the patient's arm securely against the corner of the building and listening to the trains as they passed by, to the automobiles as they passed, to the gates as they came down and to the bells that rang, as well as other chance noises. After that we stood in a secure place as close to the tracks as we could get where we had a safe place to stand and an object from which we could take a direction — a direction-taker which would aim the patient right — directly across the tracks to the other side. The direction - taker was a little drop off at the right hand side of the sidewalk, on the side of the sidewalk nearest to the third rail.

* All sighted orientators in the category mentioned here were qualified corrective therapists befor becoming members of the staff of the Central Unit of Blind Rehabilitation at Hines.

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Then we stood and stood and stood and decided that we could tell when a train was coming; that we could also tell when the gates were raised after the train had passed; and that we could tell quite a little time ahead when a train was approaching. We still had done only one thing with respect to the path which the patient would take across the tracks and that was to give him some notion of the direction he would take as he started across.

The patient's reluctance to push off with this little bit of information was understandable; however, it was necessary at this point that he do so. Both the orientator and I thought he would have to set sail. The orientator made his arm available and it was explained to the patient that the orientator would not be responsible for the route but that he would only be there as a little bit of company, 'as misery loves company', and that we knew that as long as the orientator was out there alongside that the patient would have little fear of getting into serious difficulties.

"As the patient steered his way out 'into the stream', he guided noticeably to the left. As we were on the East Side of Fifth Avenue and heading north, this put us on the right side of the street so that if the patient had moved to the right too far, he would have got into contact with the third rail. This he had well in mind, and it was this which caused him to move noticeably to the left. This was observed by the orientator, who asked the patient to stop and come back, since he was moving into the stream of traffic; a clear indication to me and the orientator that of two fears (1) the third rail, (2) auto traffic, the fear of the third rail was greatest. All together we had three fears of the patient to consider and explain: (1) the third rail, (2) auto traffic, (3) the elevated cars.

"Then we came back to the starting point and explained the use of the direction taker which we had employed at first, that it would lead to another very well defined path which he could (applying the cane technique) pick up in safety. We walked across seeing how that steered us without any particular difficulty. The orientator explained at the same time that the third rail was actually down the track some eight feet. Then we all made another trip and got a more complete understanding. We explained that, if the bell announcing the approach of the train rang while a person was in the middle of the track, if he goes at his own gait paying almost no attention to the bell, he has ten time more than enough time to reach the other side and proceed on up the street.

"The patient appeared to have no fear, at least none that he could put his hand on, of the vehicular traffic. His other two fears (of the 'L' cars and of the third rail) were so big in his eyes that he didn't appreciate the danger of the moving traffic right there beside him.

"After we had crossed a number of time we stopped and discussed the number of dangers the patient was involved in, and we came to the conclusion that the real danger of that crossing is nothing but the vehicular traffic running parallel to the path of the blind person making the crossing. This is the danger of moving out into the stream of traffic when the drivers are apt to be looking up the tracks or for anything but a blind man walking across there.

"After we had discussed this, we had a method of eliminating each danger in its turn, and we worked all week on the patient with this in mind.

"On Friday the orientator reported that the patient was making good progress; was moving back and forth across them and crossing Fifth Avenue there, using the gates as his assurance that he could cross at that point.

"The following week the orientator reported that a little extra difficulty had been introduced just to make the lesson a little tougher, when the Street Department of Maywood went to work with their air hammers about 100 feet down Fifth Avenue. As an air hammer is certainly not an invention designed to help the blind in moving about."

Summary:

The action outlined above is illustrative of the fact that in training blinded individuals to travel alone on foot, both the seeing and the blind have a function which is essential. The above description of procedure reveals that a particular kind of insight into the feelings of the patients comes from the blind chief of the unit. It also reveals the manner in which the sighted orientator must become an instrument of the chief in the more complicated difficulties which are encountered. This requires a very high type of performance on the part of the orientator, a diligence in observing and accuracy in reporting.

All orientators, both blind and seeing, must bring to their task a cultivated interest in general psychology, in those psychological aspects commonly resulting from all severe handicaps, and in the special psychological aspects of blindness. Their self-command must meet high standards in the realm of insight into the problem of others, for they must master the habit of thinking from the viewpoint of the newly blinded individual with regard to the problems of everyday living. They must steadily bring challenges to the patient, yet they must be able to estimate to a nicety how much stress the patient can endure, giving him just as much difficulty as he is prepared to overcome at a given time. And when real difficulties occur, as real difficulties will, the chief and orientators must be quick and intelligent in analyzing the total picture of the difficulties presented. They must recognize the importance of the small problem in relation to the whole and then provide the opportunity for the patient to master each small part which will lead to ultimate mastery of the whole, thereby obliterating the pattern of failure and restoring the pattern of success.

THE CONSTRUCTION OF WRITTEN TESTS IN THE SELECTION OF CORRECTIVE THERAPISTS

By

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The opinions expressed are those of the authors and do not necessarily imply endorsement by the Veterans Administration.

The problem of registration and certification of professional personnel is one which generally arises when a profession has "come of age". As a relatively new profession Corrective Therapy has, as one of its broad aims, the setting of standards of satisfactory performance by members of the profession. Concomitantly, the young profession generally sets standards as to the professional requirements desirable in its members. Past practice usually entailed the establishment of a committee on professional standards committed to setting up the education and experience required for admission as a qualified practitioner in the profession. Having established these standards, it was assumed that individuals who met the qualifications generally succeeded in the profession. Too often, however, individuals meet the educational and experience requirements but fail to meet satisfactory standards of job performance.

The factors which comprise job success as a Corrective Therapist are undoubtedly numerous and complex. The successful Corrective Therapist is apparently found to be an individual with ability to motivate the patients in his care to respond to their environment; he is tactful, patient, outgoing. He must persevere in his duties under pressure, display ingenuity in meeting specific therapeutic situations. He must have interest in his work, be emotionally stable and sympathetic. He must attain a certain level of intellectual efficiency and maturity, be versed in anatomy, kinesiology, psychiatry, physical education and recreation. It is naive to assume that standards of education and experience are sufficient in themselves in screening out individuals who succeed or fail to succeed as Corrective Therapists.

Educational and experience requirements alone do not insure that individuals will be selected, who measure up to the criterion of success as a Corrective Therapist. At the present time it is not yet agreed on what the curriculum for training Corrective Therapists should entail. Nor do collegs meet a high degree of standardization in the courses presently offered. As for experience requirements studies have been made which do not support the thesis that an individual becomes a more successful worker simply by remaining on his job. Correlational studies in fact, have occasionally shown a negative correlation between years of experience on the job and success on the job. In short, workers have been found with many years of experience who were found to be amongst the poorest workers on the job. And they tended to get even poorer, the longer they remained on the job.

This is not to say that standards of education and experience should be abolished, rather, more objective and rigorous methods of determining what these standards shall be must be instituted.

The principle approach to such a program of scientific personnel selection lies in a sound test construction technique. The past war demonstrated conclusively that such a approach resulted in vast savings in man power distribution and economy under desperate circumstances. A test construction program is now an integral part of the personnel service of many of the large federal, state and municipal agencies. The Civil Service Commission, Veterans Administration, Department of Army, Department of Navy, Department of Air Force, Federal Security Agency, Department of Labor and other agencies all have active standards and examinations programs in effect which seek employee selective devices with as high a degree of validity and reliability as possible. Industry has adopted test construction procedures as a known money-saving device, since the time and effort spend in interviewing applicants and giving them a training course has often been found wasted because of the inability of interviewers to consistently select applicants who would be successful workers, even after the training given them.

The development of a test or bat-

tery of tests for selecting Corrective Therapists, for example, is a highly complex and lengthy procedure. That it is fairly expensive and time consuming, taking often from six months to 2 years to develop good tests, has been the argument against initiating such programs. But when it is considered that education and experience standards, though established with a great deal of economy in time and funds, do not do the job for which they have been established, and that carefully constructed tests do the job expected with a known degree of predictive efficiency, arguments for the use of the former and against the use of the latter must generally be disregarded. We all, unfortunately, know of many tests which exist which do not do the job expected of them. It is now possible to purchase from a reputable scientific agency tests of mechanical aptitude which succeed clerical aptitude which predict success in engineering to a better degree, tests of personality which do nothing at all, as well as many other tests, which by their titles are reputed to be able to do a job, but which in research, accomplish nothing or unexpected results. It is usually found that such tests are born of haste, poor sampling and standardization methods, and failure to continue investigation.

At the present time the Veterans Administration is in the process of developing an assembled type of written examination for the selection of Corrective Therapists in Veterans Administration establishments. The procedure to be described is generally typical of any test construction procedure.

The development of a valid and reliable test may be divided into 8 major steps:

1. Initial planning conference
2. Job survey
3. Development of test plan
4. Test item construction
5. Development of the criterion for test validation
6. Initial test tryout
7. Analysis of Test results and final assembly
8. Validation of the test

1. *The initial planning conference*:

The test (or group of tests known as a battery) has its inception at the request of the interested user, ordinarily the individual or individuals centrally in charge of the service. Once the general need for improvement of selection has been recognized a panel of responsible officials or their designated representatives should meet with the test project director and his technicians. At this time, it is determined what the test will hope to achieve, what the recruitment needs are, the general character of the labor market from which job applicants emerge, what aspects of placement may be involved, what grade or grades should be covered, how much time, money and personnel can be assigned to the project. Thereafter, the technical aspects of the test construction process are handled by test technicians who depend on the service involved for aid in furnishing source material, information concerning centers where the job may be observed, information concerning subject matter and arrangements for experimental testing.

2. *The job survey*:

The first technical step in developing the test involves a careful job survey. The aim of this job survey is to unearth the factors which contribute to success on the job and to discover, in so far as possible, parameters amenable to objective testing. Too often we have assumed that job success depends upon adequate performance of one or several specified duties only to find that some individuals who have mastered those duties through blind practice or uncomprehending rote fail to progress in the job beyond the level of mediocrity because of a lack of background in the fundamentals. It is not enough to know what the successful worker must perform and the manner in which he must perform it. We must discover what physical, intellectual, and emotional equipment he must possess and to what degree in order for him to perform specified things in a specified manner. This specialized kind of job analysis serves a two-fold purpose, (a) it yields data upon which to delineate the subject areas for testing and supplies preliminary data upon which to base the writing of test items, (b) it furnishes information for the establishment of the criterion of job proficiency against which the test will be validated.

The job survey is accomplished in several ways. Whenever possible, a technician will survey the position directly. He will go to several of the hospitals where Corrective Therapists are employed. He will observe the job "in action" by spending as much time as possible with the therapists while they are actually performing their duties in the paraplegic wards, the NP wards, the arthritic ward or the amputee wards. He will talk to the supervisors, to the doctors, to related specialists, to secure information concerning the complexity difficulty, and importance of various aspects of the work. He will attempt to determine the background and training necessary, the tools and skills required, the responsibility involved; he will note the degrees of perseverance, attention, emotional stability and many other personality factors which enter the task.

As a supplement or adjunct to this personal observation, the technician examines all the literature he can get which will provide information about the job: training manuals, professional journals, technical bulletins and circulars. Job descriptions and standard position descriptions yield further information on what the job entails. Conferences with experts in the field are held as often as is considered necessary to supply further facts.

The job survey for test construction purposes differs from the job analysis made for classification or time and motion purposes in that it is not con-

cerned with such matters as determining salary or grade standards, but along greater broader lines to determine in which areas the test should measure including measures in the personality, aptitude and interest areas.

Having learned as much as possible about the job, the technician is ready to develop his test plan and to begin the writing of the items which will comprise the test.

c. *The development of the test plan*:

The preparation of an outline for test construction is helpful and should be undertaken in the early stages of test development. This is simply a guide or schedule outlining each of the subsequent steps in the test construction process. The tests to be developed are listed. It may be decided that the battery will include a test of learning ability, a subject matter test covering the various phases of Corrective Therapy and Physical and Mental Rehabilitation, an interest test and a personality test. Data yielded by the job survey will indicate the desirability of considering any or all of these areas for testing purposes. To arrive at a valid measure of success as a Corrective Therapist, none of these areas should be omitted or overlooked. The measure of learning ability may give an indication of the Therapist's liklihood of growing in his profession; the subject matter test gives an indication of current achievement in what the profession requires in job knowledge; the interest type test has proved useful since research has shown that applicants who show interests like those of successful workers are generally successful themselves, other things being constant; and finally, a personality test to screen out individuals with undesirable personality patterns is essential.

A separate outline should be prepared for each of these areas being considered breaking down each into its own component parts. The outlines should be formal and detailed, but not rigid. Too strict adherence to a rigid and detailed outline leads to stereotypy and stifles creative imagination. The test plans should be subject to modification as item writing and test development progresses and should be subject to periodic scrutiny by test technicians and subject matter experts alike as the work unfolds but the initial draft of the plan must be as detailed as is consistent with the available facts. These plans show the areas to be covered, the relative proportion of items to be employed in each, the tentative emphasis or weight to be placed on each, the length of the test, type of items to be employed, format and arrangement of areas and of items within each area, and in many cases marginal notes on the relationship of parts of the tests to others in the same battery. Thus conceived and prepared the test plan becomes the blueprint of the finished job.

4. *Writing the test items*:

Depending upon the viewpoint taken, two mutually exclusive opinions are held regarding the importance of this phase of the test development program and each has led to the construction of poor tests. There is a class of test constructors which says that item construction is the complete essence of the job. They bend all of their efforts to the construction of the items and give short shrift to statistical evaluation of these items. "Let us have sound items constructed by competent subject matter experts covering recognized aspects of the job; let us have these items reviewed by psychometricians for technical perfection; let us have experts attest to their grammatical soundness and let us screen them for legal, moral and political implication; assemble them into a unit and we have a usable test." Perhaps so, but this type of test construction more often leads to tests of mediocre validity far below the potential of a selected group of items so painstakingly prepared. Lacking in this approach is the information to be gleaned from a statistical item analysis done on items after administration to a representative group of subjects —information as to the discriminatory power of each item (even the most carefully prepared and beautifully planned items can fail to discriminate between good and poor workers and in so doing are deadwood in a test, taking up time and space which could better be devoted to other items), and information on the interrelationships between items (two items different in nature and apparently unrelated often show extremely high intercorrelation and hence are doing the same job so that one would serve where two are being used.)

Another group looks upon item writing as the necessary evil to be gotten out of the way in short order so as to get at the really important task of performing ritualistic statistical rites on the results of preliminary testing. "Just write a lot of items and don't waste any time on them. Our statistics will show us the good ones and we will assemble a test using only the best and thus have a valid test." Again the answer is, "perhaps so." But this type of test construction also yields tests of mediocre validity far below the potential of a group of items, however well known the interrelationship and discriminatory power, which could have been more soundly conceived and written in the first place.

There is a compromise procedure which is followed by the more succesful test constructors. It is a procedure which unlike the proponents of the second group places a great deal of emphasis on the preparation of the item, its imaginative conception, sound preparation, technical perfection and grammatical correctness but unlike the proponents of the first group demands statistical verification of the efficiency of the item and is not blinded to its lack of validity by the sheer beauty of a well turned phrase.

The construction of test items is a highly creative task demanding

technical competency in the principles of mental test theory, facility with the use of language to express ideas and detailed familiarity with the subject mater being tested. For this reason a good item is more often the product of a team than of an individual. The subject matter expert collaborates with the test technician to create an item which is then best reviewed from other technical considerations by others more expert in matters of syntax, expression, etc. A good test item doesn't "just grow" like Topsy. From the raw material supplied by a job analysis and the background of subject matter experts an idea is generated, given body by subject matter specialists, welded into form by test construction technicians, polished and refined to conform to the idiom of our language, evaluated by the statistitian and finally an item emerges to takes its place in a test which will give the maximum validity in the selection process.

5. *Development of the criterion for test validation*:

The process of validating a test is simply the process of finding out how well the test does the job it was constructed to do. A valid test for Corrective Therapists would be a test on which competent Corrective Therapists received high scores and poor Corrective Therapists received low scores. In order to examine the validity of a test we obviously need some criterion of what constitutes success as a Corrective Therapist. This criterion measure is an extremely important phase of the test development process. At a recent symposium on criterion methodology leaders in the field of mental measurement agreed that as much time should be spent in developing the criterion as in construction and perfecting the tests. This may appear to be an overstatement of the problem yet all it says is that in order to solve a problem we must first possess adequate knowledge of what the problem is. We cannot hope to construct a test which will select good Corrective Therapists unless we know what constitutes good job performance and have an instrument which will tell us how good the people are on whom we attempt to validate our written test. There is little doubt that unless we have a standard against which we are to measure, there is little use in attempting to measure at all for we will not know what our measurements mean. The most important problem in the field of psychological research today is the development of valid criteria.

Stated in the jargon of test research there are two major types of criteria in widest use today; (1) a product criterion in which job proficiency is measured in terms of objective measures of job production such as quantity of work, amount of acceptable work produced within a given period, spoilage, cost of accidents, earnings on a commission basis, number of operating mistakes, etc. (2) a subjective judgment criterion in which job proficiency is measured by means of a rating scale completed on the worker by his superior, supervisor or any others qualified to make judgment on the calibre of his work. When this rating scale technique is employed as it must be in positions of the type considered here it is important that the scale in use be as objective as possible and supply the rater with as many aids and guide points to rating as possible. It takes the form of a check list of points for the rater's consideration.

The rating scale to be employed for establishing a criterion measure on Corrective Therapists will take the form of a job performance rating scale consisting of the factors determined by the job survey to be basic components of the job, each within a scale broken into units, usually 5 to 10 in number ranging from poor to perfect or some similar designation. Each scale will carry numerous statements illustrating samples of the type of job performance to be considered under that specific job component. These rating scales, when completed by individuals who know and are able to rate the work performance of the worker, yield scores which constitute the criterion rating. The written test scores can then be analyzed against this measure of job proficiency to determine the validity of the test. The criterion rating scale like the test itself is developed with the aid of specialists in the profession.

6. *The initial test tryout*:

This next plan of the program of test development, if not the most important, is at the very least an indispensable part of the development of a valid test. No claims as to the validity or predictive efficiency of a test can be made before the test has been tried out on a representative group of persons. Such a trial is often called a "pilot study." It is true unfortunately that many of the written tests in existence today are being used for selection, prediction, guidance and counseling which have not been adequately proven before use. Some have been developed and put into use, even sold commercially, on no more meritorious grounds than that they *look* as if they *ought* to do the job. The organization, agency or firm using written tests and the people on whom they are used deserve a better fate than this. There is no magic in a written test. It is merely a tool to be used in prediction and as such it can be a poor tool as easily as a good one. Before we can know what kind of a tool we have we must try it. The purpose of the tryout is to ascertain whether the range of scores to be derived from use of the test will correlate positively with the job success of the people being tested, i.e. will high test scores be achieved by the good workers and low test scores by the poor workers?

The method of test development under discussion requires two trials, one trial furnishes data for statistical analysis and more often than not results in a revision of the test on the basis of item validities and interrelationships, the other trial is called

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EDITORIAL

Corrective Therapy is a new term in the field of Physical Medicine Rehabilitation. Its purpose, scope, principles, aims and objectives have been advancing systematically under the direction of the Physician.

The Physician is the leader in this phase of the treatment. The exercise, dosage and objectives are all outlined for the therapist by the qualified medical adviser, the Doctor.

The underlying purpose of Corrective Therapy is to assist patients in making a better physical and mental adjustment to life not only while they are in the hospital but afterwards when they are citizens in their respective communities.

The definition that corrective therapy is the totality of methodical movements for therapeutic purposes as prescribed by the physician in physical medicine rehabilitation, falls also into the entire sphere of exercise therapy.

By correctives we understand the totality of methodical movements which a person performs either for corrective purposes, or for purposes of development, either performed by himself, active exercises or by others upon himself, passive exercises. Also, resistance exercises, whereby the individual either works against external resistance, active resistive exercises, or gives resistance himself to movements which are done with him, passive resistive exercises. The resistance can be administered by the therapist or by equipment constructed for this purpose.

Corrective therapy is the general name for every kind of systematically arranged movements of the body. Remedial gymnastics accordingly was the name for all systematically arranged movements for corrective purposes. The word "gymnastic" itself comes from the Greek "Yvurog", naked, and is therefore the art of regulating the movements of the naked body systematically. Galen often used the word "kinetic", which is still used in France. In corrective therapy we differentiate active movements, passive movements, and resistive movements.

The healthy individual as we all know only remains healthy through sufficient bodily activity: *Activity is life; inactivity is death.* This applies to all organs. But if we can benefit the healthy individual through intensive use of all his organs; then all the more we can improve the weak individual through bodily activity, though naturally it must be an activity suited to his constitution. Just as the doctor consciously plans the diet differently for healthy and for sick individuals, so he must also prescribe movement conditions, (exercise) if he wants to make them a remedial factor. From experience we know that only systematic work really strengthens them. A physiological law of functional adaptation: "The stronger function changes the qualitative constitution of the organs, in that it increases the specific performance ability of the same," naturally applies not only for the musculature, but also for all systems of organs.

We say emphatically that it is essential to the success of physical exercises, that there should exist a close connection between bodily work and feeling, i.e., emotional and voluntary-will. These two are, theoretically, almost universally known and recognized. But therapeutically, they are still not used to their fullest extent. This fact has long been known, by means of physical exercises, the control of the will is directly facilitated. The body can only be

(*Continued on Page* 32)

- Letters - TO THE EDITOR

Dear Editor:

Enclosed is a special release about the March Esquire article, THE SAGE OF SPORTS. This excellent profile is by Dr. Albert Parry of Colgate University. It deals with Dr. Peter Karpovich and his work with the medical aspects of physical education and sports.

I know that you and the readers of the *Journal of Mental and Physical Rehabilitation* will be particularly interested in this outstanding Esquire article.

Cordially,

Jack Macdonald
Esquire Magazine

* * * *

Dear Editor:

We note that the fourth Annual Convention for Rehabilitation will be held at Hotel Peabody at Memphis, Tennessee the later part of May. We have just recently produced a 16mm. film showing a number of different methods by which paraplegics can get into and out of automobiles, in and out of bed and in and out of bathtubs, how they can dress with the greatest of ease, etc. We think that your convention might like to use this film. This film runs for about fifteen minutes.

We believe that the last issue of the *Journal for the Association for Physcial and Mental Rehabilitation* is the best issue we have ever seen of this journal. You are to be complimented on the excellent work that you are doing.

Yours for the rehabilitation of the handicapped.

H. A. Everest, President
Everest and Jennings
California

A STUDY OF AMPUTEE ACCEPTANCE OF PROSTHETIC DEVICES

It has been estimated that the total number of all kinds of amputations performed annually in the United States is approximately 25,000. During World War II, about 18,000 service men sustained either arm or leg amputations. There are over 500,000 amputees at the present time. It is clear that a group of this size constitutes a major problem to those concerned with physical rehabilitation, vocational education, and job placement.

During the past few years the developmental research activity has produced various new types of experimental prostheses. These devices have successfully passed various laboratory tests, however the engineers were dismayed when the amputees they were using as subjects provided different reactions for identical devices. It became apparent that in order to understand the man-machine relationship a greater understanding of the amputee and his needs would have to be obtained.

As one well know limb maker, a veteran of over thirty years in the business expressed it, "We can do a perfect job of fitting a prosthesis, but if the patient isn't adjusted up here (pointing to his head) we're licked." The point may be illustrated by a statement of one of our own amputee's in the present study . . . "Sometimes I feel I pick on these malfunctions because I don't like the hook cosmetically, maybe with new fingers and a new case I'll feel differently."

The particular study we are presenting represents research done on one type of device, a new type hook which was designed to provide the amputee with the ability to apply differential pressures and to lock upon an object securely.

The work has been accomplished as a joint effort of the Research Division, College of Engineering, New York University, and the Veterans Administration, under contract to the Advisory Committee on Artificial Limbs, and the National Research Council.

This paper is concerned with an appraisal of the role of the psychological factors in the adjustment of ten subjects to the use of a new hook.

The group of ten below-elbow amputees who were finally selected to participate in this research were largely representative of World War II veterans. .They appeared to be highly motiveated and cooperated excellently in the research. Aside from the injuries sustained in the war the group is essentially a healthy one. They are well educated, above average in intelligence. Their salaries range from $35 to $135 a week. Half of the men are married.

Briefly the procedure was as follows: The subject reported to the laboratory once a week for formal training in the use of his prosthesis and at the end of each training period he was given a Skill Achievement Test. This test was originally devised to provide data concerning the rate of learning for each pilot wearer both on the conventonial hook and on the new Experimental Hook.

A graph was kept for each subject and the nature of the learning curves explained to him, so that he was able to follow his weekly progress. All of the men exhibited a keen interest in this graph.

All subjects were given formal training on their conventional device regardless of any prior training they may have received and each amputee received as many training sessions as was necessary to bring him up to the maximum level of his efficiency. As soon as the learning peak was reached on the conventional hook the subject received his new experimental hook and the same procedure was followed with this hook as was followed with the conventional prosthesis.

When the maximum level of efficiency was attained with the experimental hook, the subject was re-evaluated on the conventional hook to see if any transfer of training had taken place between the two types of hooks. Finally the amputee was allowed to use his experimental hook for 30 days without reporting to the laboratory. At the end of this period an evaluation was made to determine changes which occurred after completion of the formal training.

In the preliminary visits to the laboratory the amputee filled out two questionnaire forms, a Biographical Information Blank, (BIB) and an Arm Amputee Questionnaire. When accepted into the program he was given a Wechsler-Bellevue anl a Minnesota Paper Form Board Test to complete. A Clinical Interview was also conducted.

The purpose of the BIB was to collect relevant personal history data and to provide for a well organized and useful Clinical Interview. The Arm Amputee Questionnaire is composed of two parts; Part I is factual in content; Part II is a sentence completion test which provided an opportunity to evaluate the subject's attitudes. The purpose of the Initial Clinical Interview was to tap and discuss material revealed by the BIB and to collect data not otherwise obtainable.

In the Initial Clinical interview we were principally interested in eliciting the subject's basic attitudes, towards himself, towards the present and the future, towards other persons, etc.

The materials gathered by these instruments describe the feelings and attitudes of the subjects prior to their participation in the research. It serves as a baseline against which changes in attitudes arising through their use of the experimental Hook are measured. The changes in attitudes in the familial, economic and social areas were obtained in Progress Interviews conducted during the course of the experiment.

The BIB and the Arm Amputee Questionnaire served as the initial sources for information about the subjects' attitudes towards family and friends. However, we find a curious anomoly. Answers to questions such as "are you satisfied with your family's attitudes towards you?" exhibited no evidence of any type of difficulty in this area in this area. (The one exception was an amputee who claimed that his mother had never accepted his amputation.) When, however, these attitudes were again explored in the Clinical Interview and in the Progress Interviews, seven subjects revealed difficulties which had not been previously mentioned. These apparent contradictions revealed the importance of the Clinical Interview to explore and validate the data supplied by the subjects on written forms. It also indicates the importance of using several techniques covering the same area to insure the correct interpretation of data.

One of the determining factors in the amputee's acceptance of a specific device, arises from the family's evaluation of the prosthesis, and their emphasis on utilitarian or cosmetic factors. It was found that in those cases where the amputee had become more self sufficient through increased skill in the use of the experimental Hook, his family and friends became more accepting of the utilitarian aspects of the device, and decreased their emphasis on the cosmetic aspects.

In this respect, training plays an important part in increasing an amputee's skill on his device. With few exceptions our experimental group considered the opportunity to receive training a valuable experience. Some of the positive attitudes expressed toward training were:

(1) Training provides an opportunity to learn the many ways in which the hook can be used.

(2) Training allows the amputee the opportunity to receive help in analyzing the problems involved in using his hook, in a place where he feels secure enough to face the problems, and

(3) Participation in training in a group setting provided incentive because of competition with other men.

However, despite these positive attitudes the men felt no carry over existed in the skills they learned in the training situation to the tasks that they normally performed in everyday life. In their opinion these specific skills had to be developed on the job. This attitude may be a reflection of inadequate orientation towards the training. Greater emphasis might have been placed upon the usefulness of developing basic skills and the relationship of these basic skills in daily life activities.

In an effort to understand the psychological factors which are related to the efficient use of the experimental hook, two Psychological tests were administered. The Wechsler-Bellevue Intelligence Scale was administered to determine if any relationship exists between intelligence and use of the experimental hook. The Minnesota Paper Form Board Test was administered to see if visual spatial factors play a role in the use of a hook.

To obtain a criterion of skill in the use of the experimental hook, four professional members of the staff, two training specialists and two psychologists, prepared independent ratings of the ten subjects concerning the amputee's skill in the use of the experimental hook. The resulting ratings were then intercorrelated to determine the reliability of the four judgements in this area; the resulting correlations ranged from .60 to .95.

A composite ranking was then available for the purpose of establishing relationships with the intelligence and perceptive factors which had been measured.

An analysis of scores on the Wechsler-Bellevue Intelligence Scale suggest it was not realistic to use this data, since the test scores for our sample did not show an adequate range of intelligence as measured by this test.

The scores on the Minnesota Paper Form Board Test were correlated with the criterion data of "skill in the use of the APRL Hook," and an "r" of 93 was obtained. We feel that the

New Manager

On August 21, 1949, Dr. Linus A. Zink was appointed Manager of the new Fort Hamilton Hospital by Carl R. Gray, Jr., Administrator of Veterans Affairs.

Dr. Zink is thirty-nine (39) years old, a former Lt. Col., A.U.S. As a veteran, he spent 39 months in the South Pacific as Hospitalization and Evacuation Officer.

Dr. Zink received his medical degree from Ohio State University in 1937. His former V.A. assignments were the Dallas V.A. Hospital and then to the Louisiana V.A. Hospital where he was Chief of Professional Services.

On behalf of all Corrective Therapy personnel, we wish Dr. Zink "Good Luck" in his new assignment.

correlation obtained was high enough so that further study of this relationship on a larger scale is warranted.

Should this relationship between the skill measured by the Minnesota Paper Form Board and the criterion be equally significant in a larger sample, the Minnesota Paper Form Board can be considered a valid predictive instrument which may enable prediction of the level of achievement possible for a prospective hook wearer. This finding is significant in assisting the individual to recognize what he can hope to accomplish with a hook, and can assist training specialists in evaluating the man's present functioning in terms of his potential abilities. By the way of summary the experimental data suggest the following:

1. Visual apperception as measured by the Minnesota Paper Form Board Test appears to be related to the ability to use a hook effectively.
2. Increased self-sufficiency on a device is directly reflected in the increased acceptance of the prosthesis by the family. Associated with this acceptance is a change in focus from the cosmetic to the functional qualities of the device.
3. The evidence shows that training is a necessary adjunct in a prosthetic program, but there must be adequate orientation concerning the role and effects of training.
4. Our study indicates that the Clinical Interview is the most useful of the several techniques used for the evaluation of personality adjustment.

We conclude that our study has given increasing evidence to show that psychological factors play a large part in the amputee's acceptance of a prosthesis. Consequently, we feel that the application of psychology has a definite and a very important role in a prosthetic program.

MORRIS KRANSDORF
SIDNEY FISHMAN
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Application for Active Membership

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Position Title ....

Location .....

Formal Education ....
(College) (Degree) (Major Subjects)

(Required — A Major in Physical Education)

Training in Physical Rehab. .....

.....

Experience in Physical and/or Mental Rehabilitation .....
(Required — One Year Under Direct Supervision of a Doctor of Medicine)

Contribution .....
i.e. Publications, Studies, Surveys or Research in the field of Physical or Mental rehabilitation

....

References: 1. .....
Name Position Location

2. ....

.....
Signature of Applicant

Application for Associate Membership

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REVIEWS

• *THE TONIC NECK REFLEX IN THE HEMIPLEGIC. By Leonard J. Yarnshow, M.D., Otakar Macheck, M.D., and Donald A. Covalt, M.D. Archives of Physical Medicine, November,* 1949.

In this article, the author gives a report of the findings taken from experiments with the hemiplegic patient due to cerebral vascular accident. These experiments were performed on twenty-seven patients, (twenty-two having marked spasticity, two with hemiparesis and three were athetoid) to measure the influence of the tonic neck reflexes on extension of the elbow. An observation was noted that the spastic hemiplegic patient can extend his elbow to a greater degree and with greater strength when the face is turned toward the involved side than when the face is forward or turned toward the normal side. It was similarly demonstrated in three cases of athetosis and in the two cases of hemiparesis.

There are three tables provided accordingly to disability and one for the effect of treatment, giving the progress and results of each patient.

As a closing remark, the authors agree that improvement in strength and range of motion was a result due to functional exercises.

E. S.

•*DISABILITY EVALUATION. By Earl D. McBride, M.D., F.A.C.S., Oklahoma City. Archives of Physical Medicine, Vol. XXXI, No.* 1, *Page* 35, *January* 1950.

The basic requirements for evaluating disability arise from the necessity of rating the degree of physical handicap which lowers the ability of a man to fulfil the working duties expected of him. Evaluation of disability is not solely that of determining the extent of anatomic or physiologic alterations of the body. The alterations of this kind which limit the physical accomplishments must be evaluated in respect to duties of employment, or capacity for work.

The military service determination of fitness for entering into the service is regulated by military rules and practices. Industries evaluation of disability involves the process of determining the economic loss of working capacity.

The examination in cases involving a claim for disability entail investigations that will substantiate or disprove the symptoms.

Partial permanent disability implies a remaining ability to work. The result of the injury may change the social, mental, vocational and economic status of the person. The status of the disability can't properly be termed until the working ability of the person has been restored to its greatest usefulness.

Rehabilitation involves the use of whatever ability is left in the patient to overcome the disability he has acquired. The complete rehabilitation program includes surgical or medical reconstruction, application of physical medicine, vocational training, and readjustment to a suitable job plus a follow-up.

A functional measuring rate of disability can be derived at by finding out the working capacity of a patient through his ability to carry out such activities as lifting, carrying, handling, pushing, pulling, bending, squatting, twisting, etc. Such activities would involve quickness of action, coordination of movements, strength, security, endurance, safety as a workman employability.

S. F.

"Journal" Travels

Maria Fonseca — OTR from Guatamala City, Guatamala, Central America has become an associate member of the Association for Physical and Mental Rehabilitation and requests copies of the Journal Periodically.

Film Review

• *THE REHABILITATION OF THE HEMPLEGIC. Corywright* 1949 *by Filmstrips, Inc. Prepared by the Dept. of Rehabilitation and Physical Medicine, N. Y. U. College of Medicine.*

This film can be of great aid to physical medicine and rehabilitation therapists. It is a 35 mm. film strip consisting of 40 photographs in black and white. The information needed for making a complete presentation before a group of therapists, is given on 7 pages of accompanying mimeographed text. The film deals chiefly with the physical medicine rehabilitation of the hemiplegic. Passive and active exercises for the patient while he is still in bed occupy the first third of the film. The next section deals with pre-ambulation and ambulation activities. And the final section deals with daily life activities, such as stair climbing and putting on shoes. This film is quite interesting from the point of new techniques. It is suggested, however, that the film be followed by a group discussion, wherein the the techniques used in the film are discussed, criticized, evaluated; and various other techniques be brought up for critical comparison with those of the film.

A. H. C.

EFFECTIVENESS OF THE HOSPITAL CONFERENCE IN REHABILITATION*

By

J. L. RUDD, M. D. REUBEN J. MARGOLIN, A. M. CHARLES L. ROSE, A. M.†

Reprinted from Occupational Therapy and Rehabilitation, Vol. 28, No. 3, June, 1949

INTRODUCTION

The Hospital Conference is used in many hospitals as part of the medical rehabilitation program. In this paper we shall examine the effectiveness of such a Conference through a study of thirty cases seen at the Veterans Administration Hospital in West Roxbury, Massachusetts.

The Conference membership included the Chief of Physical Medicine Rehabilitation as chairman, and the Chiefs of the Neuropsychiatric Service, Social Service, Occupational Therapy, Physical Therapy, Corrective Therapy, the Vocational Advisor and the Clinical Psychologist. In addition, the ward physician of the patient considered attended the conference to present the problem, for only patients who presented special or difficult rehabilitation problems were brought to the attention of the Rehabilitation Board. The functions of the Conference were: 1. to plan a regime for the hospitalized patient designed to offer maximum benefit, 2. to coordinate the hospital program with a post-hospital plan. At the Conference after the case presentation, each member joined in a free discussion of the medical, psychiatric, social and vocational elements leading to an integrated meaningful rehabilitation plan. Case reviews were continued throughout hospital stay and following discharge. Cases were closed when it was believed no further benefits could be achieved.

* Published with permission of the Chief Medical Director, Department of Medicine and Surgery, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn by the authors.

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Reuben J. Margolin, formerly Chief Corrective Therapist, Veterans Administration Hospital, West Roxbury, Massachusetts.

Charles L. Rose, Acting Chief Social Worker Veterans Administration Hospital, West Roxbury, Massachusetts.

ANALYSIS OF THIRTY CASES

Thirty cases were considered by the Conference during the fifteen-month period from September, 1946 to December, 1947, in the course of thirty-eight meetings, which included twenty-eight case reviews. These cases were analyzed from the medical-emotional and social-vocational, including a follow-up period from December, 1947 to December, 1948.

Medical Condition and Emotional Component

The thirty cases were classified under six disease categories:

1. *Arthritic*: The large number of arthritics (eight) was most significant. Their arthritis was peculiarly crippling and required special rehabilitative effort, accounting for its prominence in the Conference group. All of the arthritics presented significant emotional backgrounds. Typical concomitants to their illness were unstable family background, marital problems, alcholism, and imminence of overseas service. These factors were present in the eight arthritics as follows:

Case 1. Early disturbed emotional life continuing into the present. Demolitionist in Service.

Case 2. Psychopathic personality and alcholism. Arthritic symptoms appeared at port of embarkation.

Case 3. Early disturbed emotional life continuing into the present. North Atlantic duty.

Case 4. Marital problem aggravated by absence due to Service.

Case 5. Early death of both parents with resulting instability. Onset of symptoms during training maneuvers.

Case 6. Alcoholism and marital problem aggravated by Service.

Case 7. Marital problem, which was partially solved by patient's absence from home due to necessity of long term hospitalization.

Case 8. Onset of symptoms coincided with economic depression, loss of job and loss of home.

2. *Neurological*: Of the six neurological cases, two were traumatic head injuries of combat origin with residual hemiplegia and aphasia, two were brachial nerve plexus injuries, and the remaining two were Charcot-Marie Tooth's type and myasthenia gravis. In all these cases, personality change and emotional problems were sequelae of the injuries. There was considerable tension in the aphasics who could comprehend others but could not in turn express themselves. In one of the head injuries, there was also explosive behavior, believed to be an epileptic equivalent. Deepening of dependency, withdrawal, and marital friction were further characteristics of patients. The Charcot-Marie disorder was associated with a psychoneurotic background, which served to retard response to treatment. The patient with myasthenia gravis present-

ed a sound history and it is noteworthy that his response was excellent, even though his condition was the most severe of the group.

3. *Orthopedics* The four orthopedic cases were compound fracture of leg with osteomyelitis, fractured femur, fractured vertebra, and dislocated hip. In contrast to other disease groups, these cases presented a good medical prognosis. They were generally a young, restless group who found it hard to accept a long-term hospital and convalescent program. The patient with compound fracture and osteomyelitis appeared to be accident-prone. His history included contact with a child guidance clinic, drinking and reckless driving in the post-pubertal period. He fractured a tibia in a motorcycle accident, then re-fractured the leg due to his own carelessness. Further social and emotional problems in the patient were brought about by the onset of osteomyelitis, prolonged hospitalization, inability to enter gainful employment, and inability to re-enter the accustomed social and recreational activities. Included in this group was a female patient who incurred a back injury in an ambulace accident while in service as a WAVE. The resultant prolonged hospitalization contributed to a broken engagement, as well as an overattachment to the hospital, which appeared to be fed in part by the constant attentions of some male patients.

4. *Psychoneurotic*: Two patients were classified as psychoneurotics. In one, physical injury was incurred when he jumped out of a window in the course of a nightmare. In the other, there were present some minor somatic conditions, but the basic psychoneurosis exaggerated their disabling effects, and was believed to have paved the way for a duodenal ulcer.

5. *Asthma*: The two asthmatics presented important social and psychic factors. One had an asthmatic mother whose death aggravated his asthma. This patient resisted hospital discharge and any rehabilitative activity. Significantly enough, after his compensation claim was adjudicated favorably, he found himself able to function outside of a hospital. The other veteran had a difficult home situation since childhood: a drunken, abusive father, an oversolicitous mother, and a psychoneurotic older brother. His asthma developed on shipboard, and a "hard ship discharge" followed. This second case, was felt to be a "true asthma." Even though there were extensive disturbing psychic forces present, one could not safely be committed to a psychic etiology.

6. *Others*: One of the remaining eight was an ulcerative colitis which offered a classic example of psychic etiology. This patient responded in a notable manner to psychotherapy in a Mental Hygiene Clinic following hospital discharge. Another case, which was dermatomyositis, presented in addition a conversion hysteria. A case of hematemasis of unknown etiology displayed increasingly severe psychiatric changes as surgical procedures of investigative and operative type did not produce any beneficial results. To make matters worse, there was already a background of unstable family life, delinquency, and alcoholism. A cerebral-vascular accident displayed behavior passivity and aphasia, both due to organic brain damage. Hodgkins Disease, Buerger's Disease, bronchiectasis, and diabetes with above knee amputation, concluded the series.

Social and Vocational Factors

An evaluation of the patient's social background was obtained from social service records. Those patients who had a history of stable family life and lived according to fairly regular habits were rated as "stable." Those whose home life had been broken in some manner, or themselves were separated from marital partners, with poor social habits and patterns of behavior playing a role, were rated as "unstable."

Thirteen were evaluated as "stable" and seventeen were rated as "unstable". In each of these "unstable" seventeen, the adverse social factors were such that they contributed significantly to the disabling effects of the illness, and made the problem of rehabilitation more difficult. The preponderance of "unstable" cases is an interesting reflection of the fact that the cases were, by selection, problem cases to start with. Marital status seemed to make no difference as to incidence of "stability" and "instability." Eight of the thirteen married men were unstable, and nine of the seventeen single men were "unstable."

The incidence of alcoholism as an important factor in the illness and response to rehabilitation was impressive. Eight of the thirty were alcoholic. Five of them were chronic drinkers, and the rest episodic. All of the five chronic alcoholics were "unstable," while one of the three episodic alcoholics was "unstable." Among the twenty-two non-alcoholics, eleven were "unstable" because of other adverse factors.

In brief, when drinking was present, "instability" was present in most cases. Where drinking was not significantly present, however, one half of these were still found to be generally unstable in their background.

As to the vocational disposition of these thirty disabled patients, six took jobs different from the work they had before they had become disabled, while eight were able to return to their old line of work. There were two others planning to return to a work program, but due to continuation of limiting medical factors, the actual return to work was still delayed.

In two instances, a school plan was formulated but actual starting of school was held up pending medical clearance. Five patients refused to cooperate in any school or work program. There were seven patients for whom school or work was not feasible due to the severity of their condition.

Effectiveness of the Conference

An effort was made to measure the effectiveness of the Conference

through a study of thirty cases during the period they were considered, from September, 1946 to December, 1947, and during a follow-up period till December, 1948.

The following criteria were utilized:

1. Successful Discharge, measured by the number of patients discharged from the hospital and not readmitted, except where medically anticipated.

2. Vocational Adjustment, measured by the number of patients who achieved a satisfactory vocational adjustment in terms of their skills and general ability.

3. Personal Adjustment, measured by the number of patients who achieved a reasonably satisfactory personal, emotional, and social adjustment.

Evaluation of vocational and personal adjustment involved some subjectivity. It is believed, however, that the determinations are reliable since they were arrived at by the co-authors after considerable discussion and pooling of experience.

1. *Successful Discharge*: Twenty of the thirty were successfully discharged. Ten of the twenty dischargees made both a satisfactory vocational and social adjustment, three made a satisfactory vocational adjustment only, two made a personal adjustment only, and five made neither. From the above, it appears that successful discharge and successful rehabilitation did not necessarily go together.

Of the ten patients not successfully discharged, five made neither a satisfactory vocational nor social adjustment, one made a satisfactory vocational adjustment only and four made a personal adjustment only. Here is some slight evidence that unsuccessful discharge and unsuccessful rehabilitation do go together.

2. and 3. *Vocation and Social Adjustment*: Ten patients adjusted both vocationally and socially, six patients made a social adjustment only, four made a vocational adjustment only, and ten patients neither vocationally nor socially.

In summary, we find as many that did not adjust as did, following ambitious rehabilitative efforts. The record might appear more impressive, however, if it is kept in mind that the thirty dealt with were, by selection, extremely difficult rehabilitation problems.

ILLUSTRATIVE CASE HISTORIES

An Arthritic

Patient, a 29-year-old World War II Army Veteran, was admitted to the hospital with generalized joint pains, more pronounced in the knee. His chief complaints were stiffness in the joints of two years' duration, with exacerbation the last two months. Onset of symptoms first occured during training maneuvers when patient spent a good deal of time in the water. Original diagnosis was chronic synovitis. Several exacerbations occurred during service. Patient was finally discharged 1 1/2 years after original onset of symptoms. Six months following Army discharge, patient was admitted to the Veterans Hospital.

Because of the extensiveness of the disease and the discouraged state of the patient, the case was taken up by the Rehabilitation Conference for special intensive work. Consultations by the Orthopedic Service and by the Consultant in rheumatic disease were held. A plaster mold was made for legs to prevent future deformities. Active muscle exercises, heat and occupational therapy were prescribed. Patient noted definite relief following treatment in the Department of Physical Medicine, composed of whirlpool, infra-red, massage, and leg exercises. Initial treatment in occupational therapy was portable loom weaving, one-half hour daily, which supplied the light type of activity he needed.

The vocational Advisor found a satisfactory work record prior to onset of the illness. Educational achievement in high schol was average. Prior to Service, patient's main experience had been as a truck driver. Patient had always been interested in "outside work" which did not require close attention to detail or high degree of responsibility. Initial impression was retraining in clerical work.

In the Social Service Department it was found that, due to the death of both parents, patient, together with other siblings, was raised by an older sister. During the depression there were severe financial problems but the children managed to adhere as a family unit. Patient himself left school in his third year of high school to go to work. There was, however, some shifting around due to periodic dissension within the family. Upon discharge from the Service, patient returned to live with his sister but, due to the exacerbation of his arthritis, had to spend a great deal of his time at home and in bed. Upon being readmitted to the hospital, he was in extremely low spirits and tended to look forward to a life of invalidism and dependency. In conversations with the social worker, he carefully repressed all expressions of hostility. He had applied for an increase in his compensation to which he was entitled but expressed that he did not want it to appear that "he was out to get all he could get".

The Rehabilitation Conference recommended educational preparation while in the hospital for a possible clerical position in the company for which he had formerly worked as a truck driver. Other possibilities, including going to a better climate and self-employment, were explored but were not found to be desirable or feasible. The social worker continued to work against the patient's mental resistances to rehabilitation. It was noted that patient's attitude changed for the better as time went on, a phenomenon which was aided by the development of a romantic interest. The personal interest evinced by medical and other personnel working with the patient also contributed to the patient's better response to treatment.

Concerted activity by all the disciplines represented in the Rehabilitation Conference proceeded over a period of 3 1/2 months. Patient was prepared educationally for a clerical position and the Vocational Advisor completed arrangements with the employer for patient's occupation as a clerk. The Corrective Therapist then brought the patient through from bed exercises to gym exercises. In the Physical Therapy Department, full range of motion in the legs was achieved. There was complete relief from pain and complete absence of deformity. In Occupational Therapy, work tolerance was increased through a gradation of activities. According to Social Service, the home environment was favorable to the patient's return. The patient was accordingly discharged, having been furnished with a priority with which to buy a car to ease the problem of transportation to work.

Interest was continued during a one-year follow up. As time went on, patient became work-hardened and eventually requested return to his "old love" of truck driving. It was believed that relocation at a clerical position immediately following hospitalization had achieved its purpose of transition from hospital life to maximum vocational adjustment. During this period, patient was able to discharge vocational and social responsibilities without exacerbation of his illness.

A Neurological Case

This patient was admitted to the Veterans Hospital directly from an Army installation. One year previously on Leyte Island he had suffered a penetrating wound of the brain due to shrapnel. Three cranioplasties followed and the end result was a residual right hemiplegia. Patient was discharged home after a few days as an in-patient in the veterans facility, as it was believed he would do as well or better living at home and coming to the hospital for out-patient physical therapy treatment. The plan was arrived at through joint collaboration of the neuropsychiatrist and the social worker. Patient's case was taken up by the Rehabilitation Conference in order that all existing treatment facilities within the hospital could be mobilized to bring about the best adjustment possible for this seriously disabled veteran. He had some function in his right arm but for all practical purposes it was useless. He walked with a limp. The problem of medical rehabilitation was to counteract the real danger of the patient falling into an inert self-satisfied state which might level him off far short of his maximum potential.

VA Has Spent $1,000,000 on Radioisotope Program

The Veterans Administration has spent some $1,000,000 and established research units in 12 hospitals, in developing its radioisotope program to date.

The Social Service evaluation was as follows:

When called into service, patient had barely completed high school. During his first combat experience on the Leyte beachhead, patient was felled with grenade fragments in his brain. Upon discharge from the Army hospital, the plan was formulated for him to live at home and come to the hospital, with the aid of the Red Cross Motor Corps, for out-patient physiotherapy three times per week. It appears that the home had always presented a secure comforatble situation. The patient's serious war disability only increased the parental solicitude. Patient thus divided his time between his own home, the home of loving relatives, and the movies. During the summer the family went to the Sea Shore where the patient derived both enjoyment and benefit out of swimming. Patient has been satisfied with whatever progress he has made and has accepted his limitations. He felt he could not go to school because of his fears of a lurching street car. The social worker had to deal with the problem of patient being threatened by the demands of intensive rehabilitation activity.

In Occupational Therapy, special activities were devised to help regain the use of the right hand. Patient even took a special sanding block home to continue the right hand exercises during the summer vacation. Later, activities were graduated to weaving on a floor loom and, finally, woodworking and jigsaw treadle. In the Physical Therapy Department, the contracture of the fingers of the right hand was considerably alleviated. In Corrective Therapy, the patient was taught the physical demands of daily living. In walking downstairs knees first locked due to fear of falling but eventually his walking greatly improved. He was slowly taught to strike a punching bag with his right hand, a feat for him, but it succeeded in developing a remarkable amount of strength and coordination, greater than had been thought possible.

Because of speech difficulties, which developed from the brain injury, patient was referred to a special Aphasia Clinic in another hospital.

Concomitantly the Vocational Advisor arranged to have the patient work in the hospital Finance office on a volunteer basis as an exploratory vocational experience. This activity filled out the patient's planned hospital regime on the days that he came in to the hospital. He thus gained confidence in discharging regular duties within an employment setting. The patient's transportation problem was solved by the securing of a car from the Government under this veteran's statutory right for such a conveyance. A further employment experience was working in the subscription department of a neighborhood newspaper.

By the end of the one-year follow-up period, patient's activity with the Vocational Rehabilitation Division was still in process. It was also learned that patient had benefited from speech therapy at the Aphasia Clinic and had been discharged from this activity after one year.

Patient is able to ambulate without any support and has greatly improved his upper and lower extremity coordination. He is able to drive a specially equipped car and is suited for a clerical position.

A Psychoneurotic

This patient came to the attention of the Rehabilitation Conference after protracted hospitalization and the formation of a hospital fixation. The objective of the Conference was to mobilize hospital resources so that the patient could be moved into the community.

The patient presented a history including a number of medical problems which were, nevertheless, not sufficient to account for his need for hospitalization. During World War I, in France, he was wounded in the right thigh and received mustard gas burns in the right leg. Later, alcoholism resulted in liver cirrhosis and jaundice. Chronic pyelonephritis was the occasion for the beginning of morphine medication, taken to relieve kidney pain, but resulting in addiction. Patient also had a thrombophlebitis and bronchial asthma. These varied illnesses were treated with resulting improvement. There were multiple hospitalizations. On each occasion, the patient utilized every means at his disposal to prolong hospitalization. He was entirely satisfied with hospital life and characteristically brought up physical complaints which he felt needed acute attention whenever the subject of discharge was broached.

In the Physical Therapy Department patient expressed his resistance to rehabilitation by failing to return during a course of treatments or expressing dissatisfaction after one course of treatment and refusing to return for other kinds of treatment. In Occupational Therapy patient constantly complained that work on the floor loom was too difficult for him. He was antagonistic and uncooperative. From these experiences, the ward physician concluded patient not only had no desire to help himself but was antagonistic to treatment efforts because of the threat of probable hospital discharge.

In the Social Service Department it was learned that patient had a prolonged and difficult marital history and that the patient's solution was to remain in the hospital where he would be immune from his wife's insistence that he go to work. While in the hospital, also, his $60 per month veteran's pension was available to the wife for support in addition to the wages of an employed 19-year-old daughter. As patient was hostile to any hospital personnel interested in his recovery so that he could be discharged, the social worker took particular pains in formulating a positive relationship. Throughout the period of contact the patient showed mixed feelings toward the social worker. On the one hand he could not deny the genuine friendship and interest displayed by this individual but, on the other hand, he was acutely aware of what was behind it; namely, his leaving the hospital and becoming self-supporting.

The Vocational Advisor found patient to be of dull-normal intelligence and to present a spotty employment record in various occupations in connection with automobiles, including repair, selling, chauffeuring and taxi driving. During World War II, the patient was able to function as a defense plant guard. It was believed that the best possible vocational adjustment for this man was in taxi driving.

Though patient was ambulatory. it was believed that his resistance to more intensive mobilization could be overcome through the use of a leg brace. The patient had informed the social worker that he might be able to walk but was afraid because he did not have confidence in that right leg. This suggested that a brace might solve the problem from the patient's standpoint. An interesting incident in this patient's stormy hospital career was the discovery of a duodenal ulcer at about the time he had been fitted for the brace and was ready for discharge. The ulcer had actually developed while the patient was in the hospital. However, intensive therapeutic efforts cleared up this condition in a short period and he was finally discharged.

With his return to the community, the efforts of the local municipal veterans' official were enlisted to implement the gains made at the hospital. This official had known the patient intimately over a period of many years. Although the career of the patient following hospital discharge involved marital adjustment, it was still essentially community adjustment and, as such, an important gain over his prior hospital career wherein his dependency and invalidism had held full sway. When patient came back to the hospital because of more trouble with his leg, he was briefly seen on the question of his gain in weight (due to ingestion of excessive amounts

New Training School for Psychiatric Aides

What Dr. William C. Menninger calls "Perhaps the most significant program in psychiatry today" will get underway with the establishment of a training school for psychiatric aides in Topeka, (Kan.) State hospital. This is a pilot project to provide training for the ward attendants who give the major part of patient care in the mental hospitals of the nation.

of cream for his ulcer). During a one-year follow up patient has remained at home and has been employed, although not regularly. He has been unable to give up dependency completely and during the periods that he has not been employed he has taken a small financial stipend from a veterans' assistance agency.

An Asthmatic

A 20-year-old asthmatic patient was taken up by the Conference because of the severe symptoms which kept him in the hospital over a prolonged period, these being associated with the onset of discouragement and dependency. The patient was believed to have a definite rehabilitation potential.

Symptoms first appeared while he was in the Navy and later, when on leave, he returned to a very upset home, including an alcoholic father. The patient, shortly after received a dependency discharge to support his mother, and started work as a carpenter. In the dusty environment of his workshop, his wheezing reached a state necessitating hospitalization.

Medically the diagnosis was "chronic bronchial asthma with a strong emotional factor based on a difficult home situation". Tests had shown sensitivity to a number of allergens. Patient had demonstrated genuine asthmatic attacks as well as attacks resembling emotional hyper-ventilation. The initial impression of the doctors was that patient should change his occupation in carpentry because of the high dust-sensitivity factor. Psychiatric examination revealed emotional instability, hereditary maternal attachment ,domestic uncertainty, and a diminution of heterosexual interest.

In Occupational Therapy patient was observed in woodworking activities and showed a great deal of initiative and ingenuity in constructing and arranging a new tool cabinet. His performance indicated ability to set up his own shop and make a livelihood.

Hospital Jobs Analyzed

A new analysis of hospital job duties will be completed within a year, and will be placed in the hands of local U. S. Employment offices as a guide in directing men and women to hospital jobs.

The American Hospital Association is working with the Federal government on the project as part of the association's overall personnel management program.

The patient was helped to develop skill in this trade with a previous formal training based only on a high school course. Significantly, the wood dust in the Occupational Therapy Shop did not aggravate his asthma.

The Vocational Advisor found patient to have average intelligence and a high mechanical aptitude. He was poor, however, in academic subjects. He was fair in basic mathematics but would have difficulty in higher mathematics. In this connection it was noted in Occupational Therapy that patient was capable of doing simple designing work but would encounter difficulty in conducting more complex operations. He handled tools far better than ideas.

The Physical Therapy Department contributed to improving his general condition through ultra-violet treatments, breathing exercises and relaxation exercises. Appetite and weight gained were aided by physical exercises in the remedial gymnasium.

It was recognized that this patient needed psychiatric treatment but because he showed aversion to formal psychiatric approach, it was believed that psychotherapeutic relationships might be set up with other figures. The social worker played an important role in this respect. During the course of the contacts the following picture became clear: He was the younger of two sons. The mother married at an early age and from the very beginning led a miserable existence due to her husband's inveterate drinking. There were itermittent separation and plans for divorce. During the periods that the father did not drink he was a good provider. The mother tried everything she could think of to reform her husband, including religious pressure and Alcoholics Anonymous but no agency provided a lasting effect. This patient, throughout his formative years, believed his mother favored his older brother. She saved money for the other's education and sent him away to study in a religious seminary. Thus, the patient found himself in a situation where he had to give support to his mother as soon as he was able to work. He dedicated his life to taking care of his mother. From time to time he engaged in violent altercations and fisticuffs with his father. After the asthma developed, symptoms were worse when the father was causing trouble.

While in the hospital, he was worried about his mother and his asthma which incapacitated him from earning a living. On the other hand, he was reluctant to leave the hospital because he feared getting an asthma attack away from medical attention.

As a transition experience, it was arranged for patient to live at home but to report to the hospital daily for medical attention and for rehabilitation activities. Interviews with the social worker as well as with the vocational advisor also continued on an out-patient basis. Training as an automobile mechanic and in the electrical field were considered. It became clear, however, that the patient's real field of interest, that of carpentry, was the only feasible occupational plan. In addition to working in his own carpentry shop, patient entered a special veterans' high school course for academic credits which he had not com-

pleted before entering the service.

Although there were several rehospitalizations following discharge, they were of short duration and in the main patient had succeeded in staying in the community and making a living.

A Diabetic Amputee

Patient, a 58-year-old World War I veteran, was admitted to the hospital with complaints of weakness, pain, throbbing and gangrene in right foot. A mid-thigh amputation was done. Prior to hospitalization the patient had not been aware of having diabetes. In the hospital this was easily controlled with insulin and eventually by diet alone.

While undergoing routine instruction in the hospital in the use of a prosthesis, patient accidentally fell on his left hip and sustained a comminuted intertrochanteric fracture. This was the first serious complication in the way of ambulation, as a prolonged period of immobilization in traction brought about marked muscular atrophy which offset the gains originally made toward mobilization.

A second complication during the hospital course was onset of pneumonia. Patient made recovery however, with the aid of penicillin and blood transfusions.

It can be seen from the above that this case presented a formidable rehabilitation problem. Hospitalization had been prolonged far beyond expectations due to a series of vicissitudes and the patient's discouragement was a natural consequence of his misfortunes. Also, there was a real question as to how successful attempted ambulation would be. This almost impossible task was undertaken by the Rehabilitation Conference.

Ambitious efforts in Corrective Therapy and Physical Therapy through general bed exercises, stump exercises, and crutch walking, slowly brought about power in the quadriceps muscles of the left leg. In Occupational Therapy graduated work was performed on a loom.

The patient's life-long occupation had been that of piano tuner. He had used a car in his business and had been particularly rushed during the World War II period when the manpower shortage was acute. His domestic life had been unhappy. He was divorced from his wife and lived with his aged mother. Patient had assumed financial responsibility for the bringing up of a daughter until her recent marriage. Despite his severe handicaps, he preserved a hope that he would someday be able to live in the community again and resume his former occupation.

It was believed the only feasible vocational plan was a return to piano tuning. If patient found it too difficult to make house to house calls, he might be able to work for one of several large piano manufacturers who were in dire need of experienced men, particularly for purposes of teaching in an apprenticeship program. It was suggested that the patient be engaged in tuning the several pianos situated in the hospital. The idea could not be practically worked out, however, because of patient's deficiency in ambulation. After two years in the hospital, even with intensive efforts at ambulation, it became apparent that a more limited goal would have to be set.

It was felt that maximum hospital benefit involved leaving the hospital with ability to walk a little with crutches. Patient was reluctant to accept this limitation but plans were worked out with the patient and his relatives for his discharge to a proper nursing home. The long period in the hospital had resulted in the development of a dependency upon hospital life which made acceptance of discharge by the patient somewhat difficut to accomplish. In the nursing home, however, he was to receive a continuation of ambulation exercises so that whatever potential existed in the patient would have an opportunity of materializing. A severe financial hazard in the way of nursing home care was solved by use of funds from a public veterans' assistance agency which supplemented the patient's veterans' pension.

A follow up check with the nursing home revealed that patient was being encouraged to take exercises and he was getting around on crutches. Although he was not as helpless as he had been while in the hospital it was believed that his condition had become static.

Although full return to original capacity was not possible in this case patient was able to progress from hospital life to a transitional community setting in a nursing home. He thus avoided abject dependency upon the government and the necessity of the more expensive hospital type of care.

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GENERAL COMMENTS

Positive Factors: The constructive contribution of the Conference along with whatever rehabilitation potentials existed in the patient-material, assured effective action in a goodly number of cases. These positive factors were as follows:

1. The focalization by the Conference on a given case assured better referral to treatment services within the hospital and in the community. Discussion often resulted in added medical, surgical, and neuropsychiatric activity, as well as physical medicine, vocational rehabilitation and social service activity.

2. Patients were made aware of their latent potentialities and were stimulated to move ahead. In one instance, a patient who had only gone as far as the eighth grade in school was found to have an I.Q. of 124 on the Wechsler Bellevue and a score of 115 on the Otis test. On the various mechanical aptitude tests, he scored in the 95th percentile. Having been a notoriously poor student in school, he was very surprised to learn of his true abilities. The patient not only started study in the hospital under the Educational Therapy program, but also began to show greater acceptance of medical and other plans developed with Conference members. Though he previously showed signs of wanting to leave the hospital against medical advice, he now stayed on until he had reached maximum hospital benefit, and, upon discharge, enrolled in a technical school in the community.

3. Patients were specifically motivated to formulate a school or vocational placement plan. There were instances when the Conference thought in terms of vocational reorientation, but the patient returned to his old job. The resiliency of the Conference in working with the patient prevented serious errors of judgment, which, had they been imposed upon the patient, would have had anti-rehabilitation effects. There were instances when return to a former employment was right and proper, though on the surface a new job seemed indicated. The patient himself, in common with the members of the Conference, may have been at first convinced that a new job would be his salvation. As the rehabilitation process matured along medical, social service, and other lines, basic changes in outlook occurred, and in the end a practical solution eventuated. At some stages the patient and some Conference members may actually have been at odds, but the unchallenged opportunity available to the patient to think for himself and work out what seemed most sensible to him, invariably produced a good result. In essence, what occurred between the patient and Conference members was a mutual learning process, just as any helping process grows out of the capacity of the helper and the person helped to learn one from the other, and to have a common experience.

4. The Conference was vigilant in regard to the timing factor. In many instances, patients were caught in time to prevent lethargy and discouragement. One youthful patient, with a serious orthopedic problem, was observed by a Conference member to be slipping into a confused and discouraged state. Prior to his military service, he had been a promising apprentice-signal-lineman on the railroad. His aspiration upon entering service had been to return to this line of work. Now in the hospital with this ambition dashed, he could see nothing ahead for himself. At this point, he was selected for Conference action. The ultimate result was a school objective to train as a radio technician. This plan accorded with his love for the mechanical and electrical field, and was also commensurate with his orthopedic limitations.

5. The Conference emphasized the personal relationship factor. This was a vital ingredient in each of the constituent activities represented in the Conference. The patient not only benefited from the personal interest of each constituent therapist, but had the added security of knowing that these individuals had banded together for his sake. The fact that the hospital was a small one facilitated the development of personal relationships between staff and patients, comparable to the small community where "everyone knows everybody else."

The management of negative expressions to relationship was a part of the total helping process. An arthritic patient who had many disturbing personal problems illustrated the use of this relationship approach. To those who worked with him, he was surly, resentful, and antagonistic. It was natural and easy for hospital personnel to be retaliatory. Conference discussion, however, stimulated a better understanding of his medico-psychosocial problems. Positive response by the patient was neither instant nor regular, but eventually certain limited objectives were attained.

6. The Conference strove to preserve the continuity of the rehabilitation process. Technically, selection by the Conference assured for a patient continuity of interest and action, through its coordination of rehabilitation agencies in and out of the hospital. This way of handling a case also helped stimulate continuity in treatment of those cases which were not formally taken up by the Conference. In almost all instances, some rehabilitation activity had already preceeded selection by the Conference.

Any illustration of the practice of continuity is provided by a Navy veteran who had been wounded in a Kamikaze attack. In a naval hospital, orthopedic, physical, and educational rehabilitation had been initiated. Later, in the veteran's hospital, the patient was recognized as continuing to present special rehabilitation problems due to the severity of his original injuries. Through Conference action, naval rehabilitation was continued throughout Veterans Administration hospitalization. Interest was maintained after discharge, which was followed by a vacation interlude in the South, and eventual plans for settling on the West Coast in an aircraft job.

7. An aim of the Conference was to reduce hospital stay and lessen readmissions. Through coordination of the diverse therapeutic activities, it was possible to complete the objective in the shortest possible time. By focalized interest in the patient, retarding psychic forces could be minimized and discharge accordingly expedited. It would be difficult to prove through statistical means that through Board action hospital patient-days and rehospitalizations were reduced. Those who worked closely with the program, however, were confident that in many

instances chronic hospital stay and unduly prolonged hospitalization were prevented.

8. A follow-up system was an integral part of hospital activity. The date of hospital discharge was by no means a signal for termination of activity. Follow-up of patient was maintained through Conference reviews, and individual follow-up by Social Service, Vocational Rehabilitation Section, and the established follow-up clinics conducted by the physicians.

9. Of particular interest, were the three cases whose medical prognosis was poor and which were considered to be terminal. An active rehabilitation regime was instituted in each of these, with the thought that while they lived their morale should be maintained. Two went to work and the third enrolled in a watchmaking school. These patients were suffering more than their share of pain and weakness, and were entitled to whatever benefit could be furnished them.

Negative Factors: The treatment setting and patient-material afforded important negative factors.

1. In some instances the pension factor worked against rehabilitation. The motive of securing or holding on to a pension, in these instances, at least partially supplanted the desire for rehabilitation. The problem was tackled as just another form of resistance, and generally there was success in overcoming it, provided there ware no formidable, limiting factors from other sources. It is estimated that seven of the thirty cases presented this problem.

2. The tendency toward formation of hospital fixation was another stumbling block. This problem occurred particularly among the patients who were hospitalized for an extended period of time. Free hospital care and unusually fine diversional and recreational facilities enhanced the problem. In some instances, the projection of responsibility for patient's care by relatives onto the government also furthered the problem. In these situations the aim was to prevent the privileges of the hospital from being abused.

Other resistances to rehabilitation effort were:

3. Psychopathic pattern: In four patients there were outstanding psychopathic traits in terms of long, repetitive, and consistent history of irregularity. None of this group made any notable response to the efforts of the Conference. These patients were also fertile ground for development of hospital fixation.

4. Disturbing family and social problems: Underlying illness and precipitated by illness were family and social problems. An ill person, particularly, has difficulty in facing and coping with these problems. The Neuropsychiatric Service and Social Service particularly were active in helping this type of patient, and usually the patient solved his problem to the extent that he was able to go ahead with his rehabilitation.

5. Neurotic reaction to illness: This included dependency, rejection of treatment, unrealistic future plans and aspirations, and other reactions which seriously blocked the readjustment of the patient to normal life.

6. Nature of illness: Serious and enervating illness carrying poor prognosis and limited longevity, chronic illness, and illness of unknown etiology which did not readily respond to treatment, provided further serious handicap for rehabilitation.

7. Public opinion: Traditionally, the community has regarded the Veterans Administration as being responsible for veteran's problems. This attitude has persisted even with the vast increase of veterans following World War II, and caused some difficulty when it became apparent that "civilian" medical and social resources must share the burden. This problem cropped up particularly in connection with hospital discharge. Community plans by the Conference were sometimes modified or delayed by community feeling that the veteran was a hospital case and not fit for discharge. Interpretations to patients, organizations and interested individuals by Social Service, key administrative personnel, physicians, and others, as to the appropriateness of hospital discharge helped to meet this problem.

8. One last difficulty encountered by the Conference might be briefly mentioned: There were some instances, particularly at the beginning of it's functioning, when it was utilized as a method of "getting a patient out." This was somewhat of a subversion of the Conference's true function. Although discharge was an intrinsic part of rehabilitation, its presence as a primary motive supplanting the broader rehabilitation objective was unfortunate.

SUMMARY

The operation of a Rehabilitation Conference in a three hundred and eighty bed General Medical and Surgical Veterans Administration hospital was described. This description included the composition of the Conference and its functioning as a highly integrated clinical team. Thirty difficult cases taken up by the Conference from September, 1946 to December, 1947 were examined in terms of medical, psychiatric, social and vocational data. These studies were conducted through a follow-up period of one year until December, 1948. An attempt was made to evaluate the effectiveness of the Conference with these cases. A tentative conclusion was reached that the Conference was effective in about one-half of the cases. The Conference, in the last analysis, was effective only when the potentialities for rehabilitation already existed within the patient. To illustrate the operation of the Conference, five representative case histories were presented. The negative factors both in the patient-material and treatment setting were set forth as over against the constructive forces at the Conference's disposal.

SUPPLEMENTAL MANAGEMENT OF POSTPHLEBITIC EDEMA

A SUPPORTIVE DRESSING TO THE LEG

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The correct physiological or surgical pressure possesses the following attributes: i. e., it is gentle, persistent and evenly distributed. The mechanics of elastic bandages (either rubber or ACE) fail to exert this type of pressure as they produce local circular constriction, are uncomfortable, and invariable sag on the conical leg of the ambulatory patient. This objection also applies to the conventional elastic garter hose. Obviously, such supports should either adhere to the skin or be attached independently of the limb.

An anatomical variation in the lower limb is of related therapeutic concern: i. e., minimal communicating lymphatics between the superficial and deep systems in the leg, although such channels are present at the levels of the ankle, knee, thigh and inguinal regions. This variation suggests that the skin of the leg from beneath the maleoli up to the mid-knee level be viewed as a unit and the correct pressure evenly distributed over this area. As the gravitational fall in the limb is thereby reduced one-half, absorption of edema in the thigh is promoted. A minimal degree of postphlebitic edema occurs in the feet and is routinely controlled by the pressure of shoes.

We recognized that ambulatory management is a necessary adjunct in therapy. However, in view of the presence of a degree of permanent venous and lymph stasis with resultant fibrous changes in the skin, the correct support to the leg is a prerequisite to ambulation.

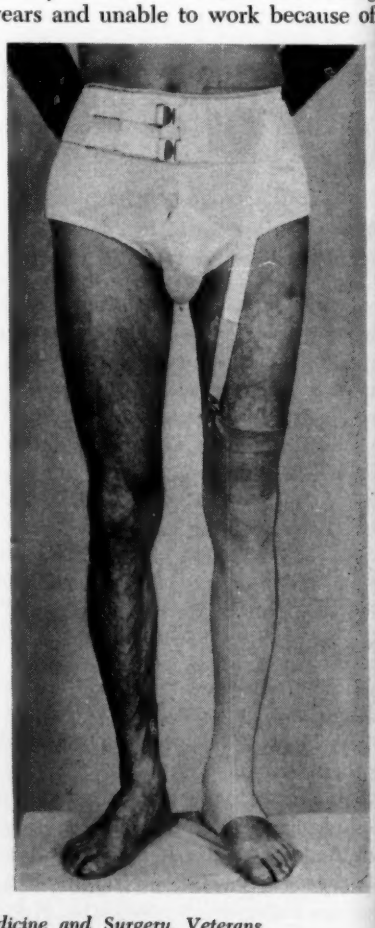
The illustrated elastic hosiery tends to fulfill the above criteria. Its use is indicated as a routine prophylactic measure in the early phlebitic convalescant; to control postphlebitic edema and prevent the recurrence of ulcer; in the treatment of subacute phlebitis of the leg or thigh and lower the incidence of venous thrombosis. However, a prerequisite to its use is that the ulcer has firmly healed and that all acute inflammatory reaction has subsided from the limb.

The two-way stretch design of this material demands the continued upward pull to obtain lateral pressure. The ladies' garter belt or one constructed from light cotton webbing may be used. The latter belt may be individually designed to include abdominal support. The anterior supporter insets of this belt are set well out from the midline and inclined inward; the upward pull is then exerted obliquely across the anterior thigh.

No individual measurements are required in the fitting of this hosiery as it is marketed in three convenient sizes. It is selected rather by leg size than foot size. When thoughtfully prescribed in the cooperative patient, this type of hosiery routinely supplants the use of the elastic bandage or garter hose.

The following representative case illustrates the post-operative use of the described hosiery. The relevant history is as follows: No. 12045, age 42. This veteran suffered a severe bilateral thrombophlebitis of the lower limbs complicating high saphenous ligation in 1943. Since that time he has undergone multiple vein ligations and three dermal grafts, the graft at the ankle having been successful.

He had been hospitalized approximately one-half of the intervening years and unable to work because of



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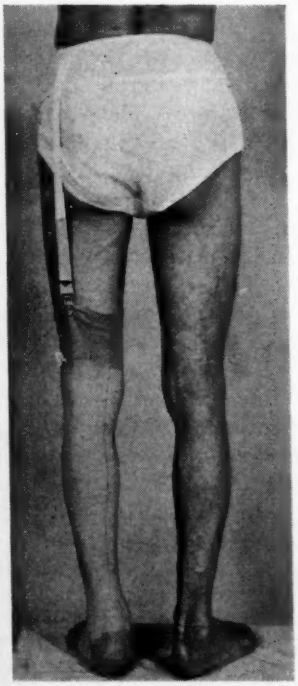
postural edema and recurrent ulcers of the lower left leg. His last hospitalization was in July 1949. Sympathetic ganglionectomy and multiple ligation of recurrent varices was performed. Following healing of the ulcers he was furnished with elastic stockings and directed to return to his vocation of contractor and carpenter.

Commensurate with age and associated medical contraindications, the psychologic and economic factors prompt the advice that these patients resume their vocations. It is felt that contrary opinion springs from the lack of the correct support to the leg.

Conclusion: Attention to the details of this concept of supplemental management and a follow-up program in these cases accrues to the advantage of the patient and results in a worthwhile reduction in the number of hospital readmissions.



(*Continued from Page* 15)

"cross validation" and is the trial upon which validity and prediction efficiency figures are based. The completion of the groups upon which these tryouts are performed is most important. The selection of subjects upon whom to try the test must be carefully done.

FOURTH ANNUAL CONVENTION

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CALENDAR of Events

MARCH 30 — 31 . . .

Institute On Hospital Personnel Relations, Boston, Mass.

APRIL 20 — 21 — 22 . . .

Fourth Annual Amputee Conference at the Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange, N. J.

APRIL 24 TO 28 . . .

National Tuberculosis Association, Hotel Statler, Washington, D. C.

MAY 23 — 24 — 25 — 27 — 28 . . .

Fourth Annual Convention and Scientific and Clinical Session of the Association for Physical and Mental Rehabilitation - Hotel Peabody, Memphis, Tenn.

AUGUST 28 TO SEPTEMBER 1 . . .

28th Annual Meeting of the American Congress of Physical Medicine, at the Hotel Statler, Boston, Mass.

EDITORIAL — (*Continued from Page* 16)

moved by means of a will-impulse. What applies for the healthy individual, applies in increased measure for the sick and weak ones. Weakness of will and depression are very often twin sisters, as are weakness of will and lack of self-confidence.

Motiviation is the prime factor in the individual's improvement and advancement. In all these cases the exercise of the muscular system reveals to us a direct approach to the education of the will. This road is of special value, therapeutically, as it helps to strengthen the weakened self-confidence by means of gradual performance, evident to the individual himself. The gradual increase of self-confidence, on the other hand, brings about a motorizing of the will, (motivation) this in turn helps us to increase performance.

Nothing has such a favorable influence upon the emotional life, as the improvement of self-confidence, because restored self-confidence produces satisfaction, and satisfaction is, for the vegetative life, the strongest strengthener and healer.

Corrective therapy in its totalistic approach to the patient is interested in using physical activities towards the attainment of functional actions. Activities used normally must be altered to fit the individuals needs in relation to his disability.

Our performances are then able to demonstrate the limits as well as the endless possibilities, which are open to corrective therapists in its services to the physically handicapped and weak individual. The limits are evident, the possibilities are extensive and great. One more hint may be mentioned. Corrective therapists work with forms of stimulation, which draw from the natural powers that lie within the individual and applies them accordingly.

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